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ORIGINAL ARTICLES

COORDINATING NATURAL AND ARTIFICIAL METHODS OF TREATMENT*

BY ALFRED PAUL ROGERS, D.D.S., A.M., BOSTON, MASS.

THIS paper is intended to be purely practical. It is to show what actually has occurred. At the same time an effort will be made to acquaint you with the simpler and more fundamental procedures. Take this paper at its face value, remembering that the author claims only that these practices are an aid in treatment and retention, and not offered as a panacea for all orthodontic problems. The histories, for the most part, are taken from cases in process of treatment, and are intended to show what is actually going on in the mouths of these children being treated with the minimum application of apparatus and maximum attention given to natural methods of development. Many of the histories are incomplete but none the less valuable for this preliminary study.

During recent years many orthodontists, and not a few physicians, have become interested in processes of facial development through the stimulation of various groups of facial muscles. The physician, of course, is interested more or less passively in the general work of the orthodontist, but is especially interested in this phase of the subject because so many patients carry with them, sometimes through life, faces whose muscular draperies mar their development because after the removal of nasal obstructions during childhood, the patient has been dismissed with the assumption that Nature unaided would remedy the faulty muscular development.

The orthodontist is becoming more keenly interested in the subject because he now realizes his usefulness can be greatly augmented if he applies

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certain simple principles involving the use of the muscle groups of the face and neck to the treatment of patients suffering from malocclusion. His field of usefulness is widening in many directions. First, and perhaps not least important, is the fact that he has re-discovered that in some maldevelopments Nature makes persistent and frequently successful efforts in overcoming them. Further than this, we have found that malocclusion which would in all probability continue progressively may be stimulated toward normal development by fostering greater muscular activity. The idea is a perfectly



Fig. 1.

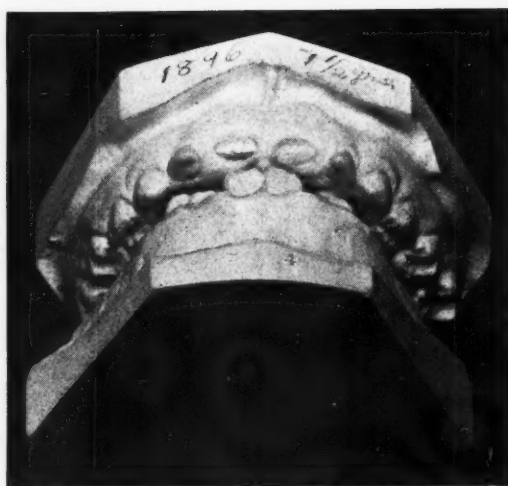


Fig. 2.

reasonable one, and one would think it readily acceptable by all who give serious and unprejudiced thought to the problems.

In approaching this brief study, suppose we examine one of the many forms of malocclusion which apparently has been developed through the influence of muscular action where the inclined plane forces of occlusion have been diverted from their normal.

The photograph of the occlusal view of this little girl (Fig. 1), seven and one-half years of age, gives us an opportunity to study such a condition. Here we find what appears to be the overdevelopment of the maxillary arch and the arrested development of the mandibular arch. Obviously the forces

exerted through the use of the muscles of mastication have in a large measure been instrumental in this two-fold maldevelopment aided by the inclined planes in malposition. It is impossible to place these arches in occlusion as will be seen from the second photograph (Fig. 2). The malocclusion is very extensive and must have been progressive. This illustrates very well how the arches may be influenced without the use of appliances by taking advantage of the inclined planes and the muscular forces. Thus may development be influenced in many directions provided the proper elements are operative.

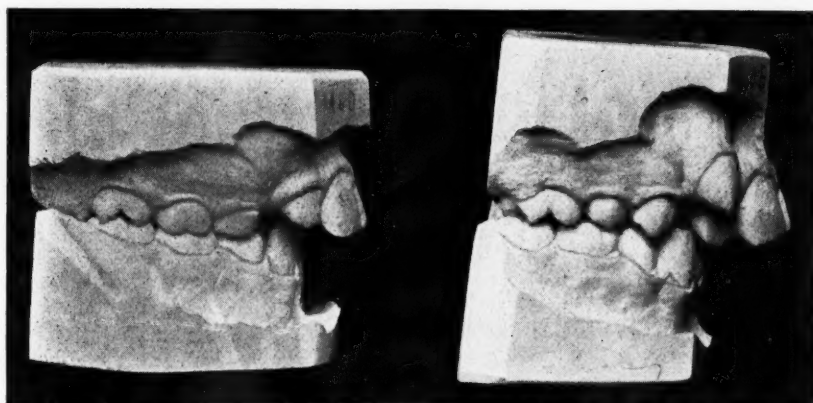


Fig. 3-A.

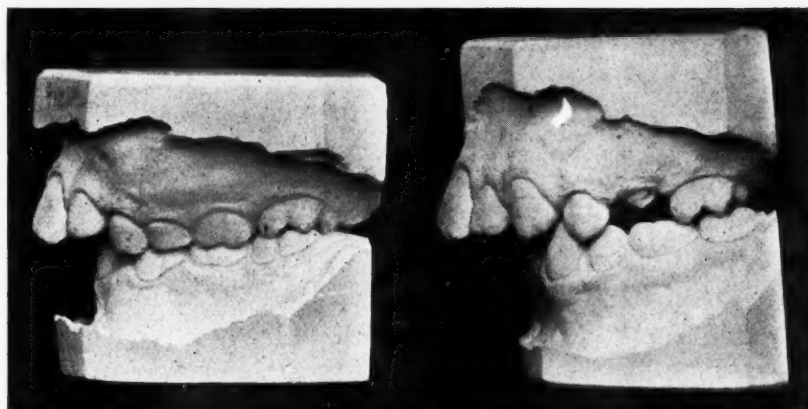


Fig. 3-B.

KATHARINE. Nine and one-half years of age. (Figs. 3-A and 3-B.)

During the transitory stage distocclusion may develop within a few weeks or months. I offer this illustration as an example of this form of malocclusion. Fig. 3-A represents the molar occlusion of a child who presented a neutroclusion for treatment. Illness intervened and the treatment was postponed for some time. Upon her return it was found that in place of the neutroclusion, we had now to treat quite a severe case of distocclusion, thus illustrating clearly the fact that in such instances distocclusion is a matter of the position of the mandible and not so much of individual teeth. The interference which caused the mandible to assume this position was due to the eruption of the canines and their influence upon the lateral incisors. The ptery-

goid muscles, which are largely in control of the mandible, it seems are extremely sensitive and as the maxillary lateral incisors were gradually pressed in contact with the mandibular incisors their malposition discouraged the pterygoid muscles and the mandible gradually retracted seeking to avoid interference. Thus develop many distocclusions. Had these groups of muscles been strong, I doubt whether this child would have suffered from this form of malocclusion. Later upon the removal of interference and the exercise of the masseter-temporal group and the pterygoid muscles this child is again normal in the mesiodistal relation without the use of intermaxillary elastics. Is not this history very significant?

It is now important that we seek an understanding of the first principles in development through the agency of muscles. The first or preliminary steps are applicable to many forms of malocclusion, and the active work is given with the idea of accomplishing certain definite advantages which are progressive in their nature. That is to say that certain changes in position and evidences of development gradually appear with the increasing healthy physical condition of the parts involved.

It has been my custom to apply the term preliminary to such forms of treatment. They are given children prior to the application of appliances even in their simplest forms. They are applicable to young children who do not exhibit any very marked interference of the cusps of the teeth, and where the treatment would not tend to increase the malocclusion if the muscle groups are strengthened; again, in those cases where atonic muscles are a source of predisposition to malocclusion through their limited function where slight arrested development might be the only evidence; where malaction (muscle spasms) of muscle groups tend to encourage maldevelopment of the arches.

The development of important muscle groups before the loss of the deciduous teeth, or throughout the entire period of transition, if properly done, tends always in the direction of development; and in frequently large numbers of cases application of appliances may be postponed from year to year. Efforts of this kind may be made not only to cases of developing neutroclusion but may be made with equal effect to developing distocclusion. Not only do these exercises seem valuable under such circumstances in directing and maintaining the mandible in its proper position, but there also seems to be a tendency to stimulate renewed activity of the osteoblastic cells so that bone building increases greatly to the benefit of the child and to the advantage of the operator. It has been noted that Nature seems to know much more accurately than we just where development needs to be encouraged. Moreover, this preliminary treatment prepares us well and symmetrically developed muscles, which are less addicted to pernicious habit formation, so that if these cases in question ultimately require treatment through stimulation by mechanical means, we have a better field upon which to operate.

In the deciduous denture, where there is sometimes a slight narrowing of the maxillary arch, which interference has discouraged the pterygoid

muscles in their effort to maintain the mandible in the proper position, removal of this interference makes the performance of the exercise much more satisfactory and easier for the patient to obtain results in a shorter period. The simplest mechanical device after a short application is often sufficient.

In going more deeply into the subject we find ourselves inquiring regarding those cases where appliances are essential. We seek details of coordination between the two methods of development. If we have followed the preliminary work to a point of understanding, we find that in many cases some parts of the usual apparatus may be eliminated, that is, a group of muscles now assumes the task of either an upper or lower appliance. Therefore we now make use of a combination of the two elements of development—the natural and artificial. It is always a great satisfaction to find that where formerly we should have applied apparatus to both the maxillary and mandibular arches, the employment of these methods of neutroclusion and distoclusion yield satisfactory results by the use of an appliance on one arch only. Think how much more satisfactory such methods must be from the standpoint of prophylaxis,—from the standpoint of convenience to the patient, and also in the conservation of the operator's time. If by attention to the details of muscle development as applied to orthodontia, we find many cases in our practice where the application of the mandibular lingual wire alone is necessary for the development of both the maxillary and mandibular arches, or where a single application of the lingual wire or the junior pin and tube appliance to the maxillary arch is sufficient for the development of both arches, how much more satisfactory it must really be.

While we are considering this subject of the elimination of appliances, let me suggest that it is possible, in fact it is one of the characteristic features of this method, to remove quite frequently all apparatus from the mouth of the young child, allowing it to go many months and sometimes years without the reapplication of mechanical apparatus. It is not infrequent, in my experience, after the removal of appliances in the spring when the muscles have been well developed, that the work through the summer rewarded us with still further development and frequently the reapplication of mechanical appliances has been deferred for greater or lesser periods. This feature alone should make a conscientious study of this problem worth while. Such improvements are sometimes found in children who have not given special attention to muscle development, but the same forces are operative just the same, but probably to a lesser degree than had the child been instructed in conscious performance.

One step further will bring us to the treatment and retention of mesioclusion where the contrast between atonic and tonic muscles is a serious consideration for the orthodontist. It is essential to know that when a developing or fully developed mesioclusion is associated with underdeveloped masseter-temporal groups, it is usually a mistake to begin the development of these muscles prior to mechanical treatment. You will notice that this statement seems contrary to one made in the beginning when speaking of preliminary treatment. Therefore, let us grasp its significance and note the

essential difference. In many cases of mesiocclusion mechanical interference may come before muscular development for the very good reason that strong masseter-temporal groups offer greater resistance to mechanical treatment in the initial stages. The treatment of mesiocclusion, therefore, should be carried on in the usual way with the use of intermaxillary elastics until the point is reached where the cusps are approaching their normal relationship. It is at this point that well-developed masseter-temporal muscles are desirable. Prior to this their weakness is an asset. Therefore, when treating such malocclusion begin the development of the masseter-temporal group at this definite point and continue not only until the occlusion is as near normal as possible, but through the whole period of treatment, and continue the activity of this group of muscles as a retentive measure. It will be found that in a great many instances there will be little need for retention of mechanical nature. Especially is this true when the teeth are provided with well-developed cusps, and where sufficient overbite has been established in the anterior region.

Not only are these exercises essential in the retention of mesiocclusion, but they will be found helpful in the retention of most forms of malocclusion. It will frequently be seen that a simple mandibular retentive apparatus is all that is necessary for the maintenance of the general development, and that only those teeth needing individual retentive apparatus will need retention. What further benefits may be derived from such methods of procedure?

It is obvious that well-developed muscles are more beautiful in appearance. In fact there is no comparison in facial development and symmetry between the results obtained in those cases which are treated solely by mechanical interference and those cases which have received a due amount of attention to the development of the various groups of muscles. Beauty of the facial contour is improved. The action of the muscles themselves is more normal and harmonious, and I believe that the results are more far-reaching than the face alone. Again the retentive value of a well-developed orbicularis oris muscle must be clear to you all. Consider what it means to have the internal and external muscles harmonious in their activity and influence. Consider what it means in greater ability to use these organs in speech and expression. Consider what it means to the field of our special endeavor when we know that we are frequently bringing larger quantities of fresh nutrient-laden blood to the parts.

Many of our good results in the past have failed because of the faulty action of one or more groups of muscles. Should attention to this work eliminate but a few of these failures, how worth while it would be.

It has been said and quite truly that it is difficult to induce children to make individual effort. You hear this especially from that type of operator who is either unwilling to try or who has not the natural ability to lead children in the direction of self-development. It is essential that we stimulate the desire on the part of the patient to wish to accomplish a given task, and encourage personal interest in the progress of the development. Of course,

some families are found who need reeducation in this as in many directions. Some people are lazy. Some children are accustomed to having everything done for them, and they have not been taught that they may accomplish much for themselves. Training of this sort is of great benefit in developing

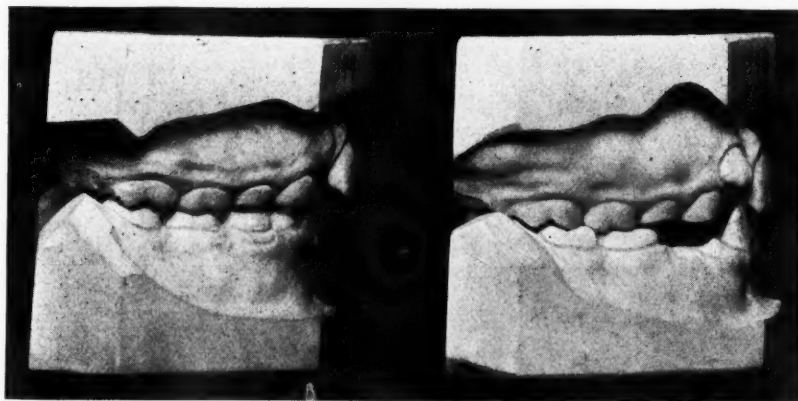


Fig. 4.



Fig. 5-A.

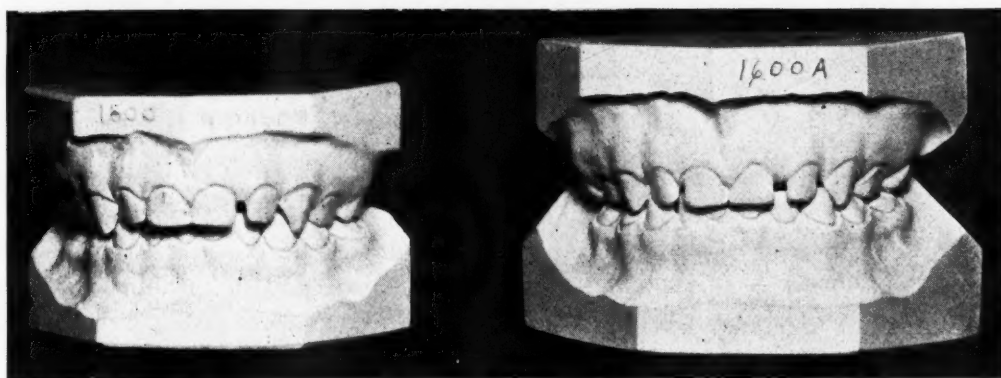


Fig. 5-B.

mental processes essential to self-improvement. This ability for self-improvement is Nature's supreme gift to man.

He is but an indifferent orthodontist who fails to qualify as a teacher to the young life daily under his influence. The very fact that one may teach a child to accomplish some physical development through individual effort

may develop a trait of character that in the future may result in the child's becoming far more of a man or woman than otherwise might have been the case.

Now, having gone over this subject in this very general way, it may be profitable to carry you through some processes of development which have been mentioned; and give you a more or less detailed account of the exercises as they are applied to the different forms of malocclusion.

I shall, therefore, turn back and show you one or two examples of preliminary treatment, and follow these by a group of case histories.

CHARLES. Nine years of age (Fig. 4). A developing bilateral distocclusion. This buccal view of the molar relation should be carefully noted. By teaching him to place his arches in correct mesiodistal relation and gradu-

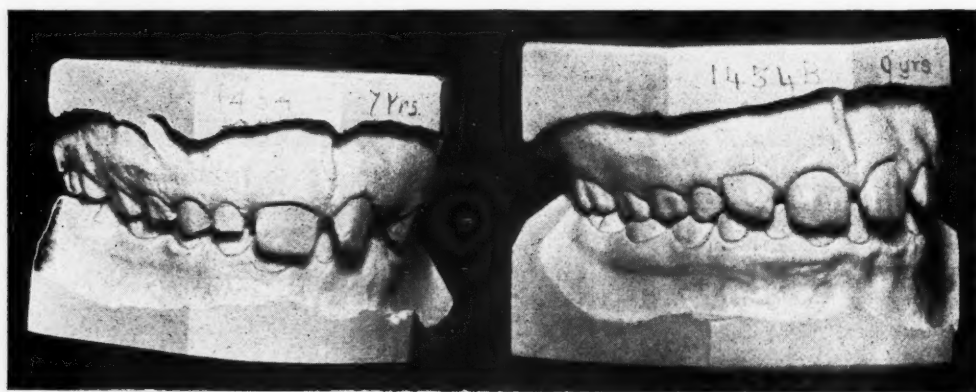


Fig. 6-A.



Fig. 6-B.

ally develop the masseter-temporal group he eliminated the use of any form of appliance, and at the end of a few months succeeded in establishing normal relation. One year later he is found still in normal occlusion having had no mechanical interference. It may be possible that some attention to individual teeth will be necessary later, but the distocclusion has been corrected without mechanics. There are probably hundreds of children wearing appliances for the correction of malocclusion no more pronounced than this. I wish to avoid the impression that like measures may be used with equal success in all forms of distocclusion; but it is hard to conceive of many instances occurring where such methods would fail to be of benefit even when used in conjunction with the usual method of treatment.

FAITH. Four and one-half years of age (Figs. 5-A and 5-B). Another and more distressing form of malocclusion. This form of malocclusion was due to the habit of thumb sucking and malaction of the orbicularis oris and attached muscles. The treatment of this child was commenced and for the most part continued without the employment of any apparatus. There seemed to exist a few points of interference of the maxillary molars and a lingual wire was applied to the maxillary for a short period. The exercises prescribed were faithfully carried out with the result that the mandibular arch, where most of the difficulty existed, and upon which no apparatus was applied, gradually changed its form coincident with the correction of muscular habits until it now presents the condition on the right of the picture. No one will deny that there has been development in this child's case, and when you read the dimensions of these arches after twelve months of exercise you will agree that the muscular efforts have been preeminently successful in spite of the fact that we have not fully conquered the habit of thumb sucking, but that the muscles against which the thumb-sucking habit operated have become so strengthened as to overcome its influence.

	MANDIBULAR		
	BEFORE TREATMENT	AFTER TREATMENT	GROWTH
2nd deciduous molars	27½ mm.	29 mm.	1½ mm.
1st deciduous molars	23 mm.	25 mm.	2 mm.
Canines	18½ mm.	20 mm.	1½ mm.
	MAXILLARY		
2nd deciduous molars	28½ mm.	32 mm.	3½ mm.
1st deciduous molars	25½ mm.	28½ mm.	3 mm.
Canines	23 mm.	24½ mm.	1½ mm.

MAY.—Seven years of age (Fig. 6-A). This treatment consisted of a very gradual expansion of the mandibular arch by the application of a lingual wire, accompanied by systematic exercise of the masseter-temporal muscles with the teeth held firmly in occlusion.

Fig. 6-B. A view of the occlusal aspect of the maxillary arch will be of interest to you. The following table will give an idea of the increased dimensions:

	MAXILLARY		
	BEFORE TREATMENT	AFTER TREATMENT	GROWTH
1st permanent molars	33 mm.	35 mm.	2 mm.
2nd deciduous molars	30 mm.	34 mm.	4 mm.
1st deciduous molars	27 mm.	33 mm.	6 mm.
Deciduous canines	26 mm.	29 mm.	3 mm.

KAY.—Twelve years of age (Fig. 7-A). Received similar treatment with very satisfactory results.

Fig. 7-B shows the occlusal view. In reading the table of the development of the maxillary arch, note the fact that under muscular activity we had a narrowing of the canine region and a flattening in the incisor region—thus completing a very satisfactory arch form.

	MAXILLARY		
	BEFORE TREATMENT	AFTER TREATMENT	GROWTH
1st permanent molars	34 mm.	28½ mm.	4½ mm.
2nd premolars	31 mm.	35½ mm.	4½ mm.
1st premolars	26½ mm.	30 mm.	3½ mm.
Canines	28 mm.	27 mm.	— mm.

No doubt there are, in the practice of many, similar cases where the intelligent application of muscular work will help in the elimination of part of the usual appliances.

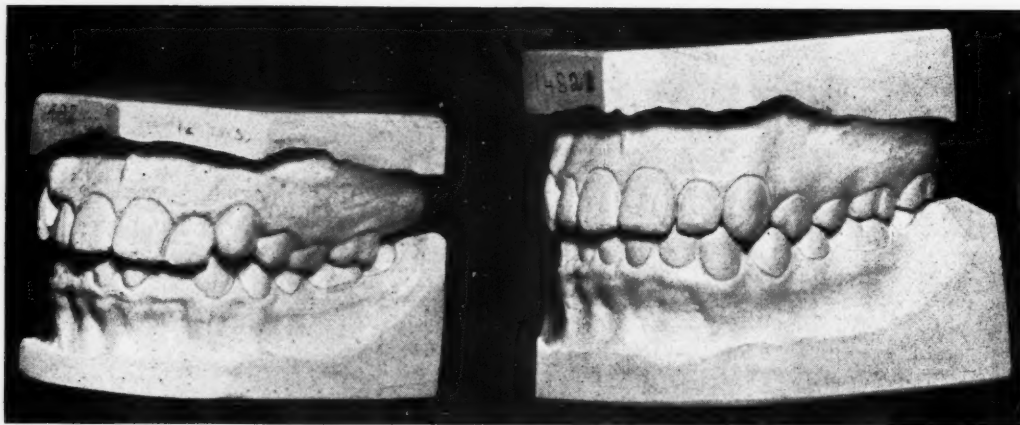


Fig. 7-A.

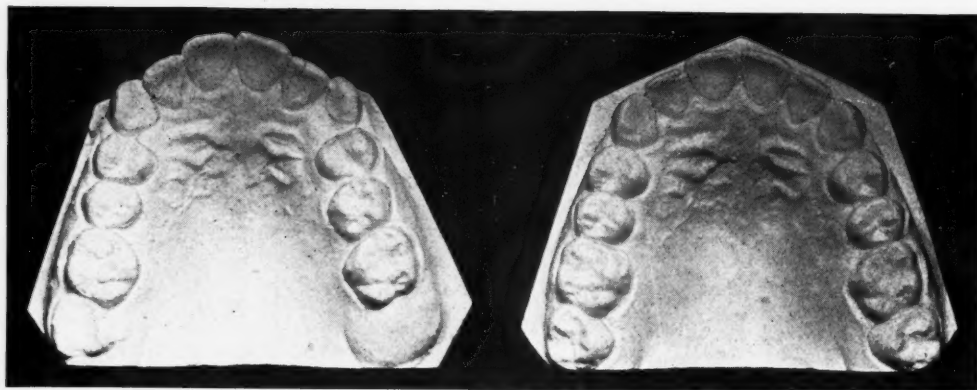


Fig. 7-B.

It has already been pointed out how possible it is to develop the maxillary arch through the development of the mandibular by the use of the lingual wire slowly developing the mandibular arch, at the same time strengthening the masseter-temporal group, thus spreading the stimuli from the mandibular to the maxillary arch and developing it also.

BETTY. Seven years of age (Figs. 8-A and 8-B). In the case of this child we have reversed the process, and through the development of the maxillary arch and the use of a gradually strengthened set of muscles we have been able to develop the mandibular arch without apparatus. The measurements of the mandibular arch show a slight development in the molar region from one-half mm. to one mm.

When we consider that this arch has been developed without apparatus being placed upon it, it will be easy to realize the advantage for both the patient and the operator.

PRISCILLA. Four years of age (Fig. 9). This case is familiar in type to all readers of orthodontic literature. The time was when it gave us great

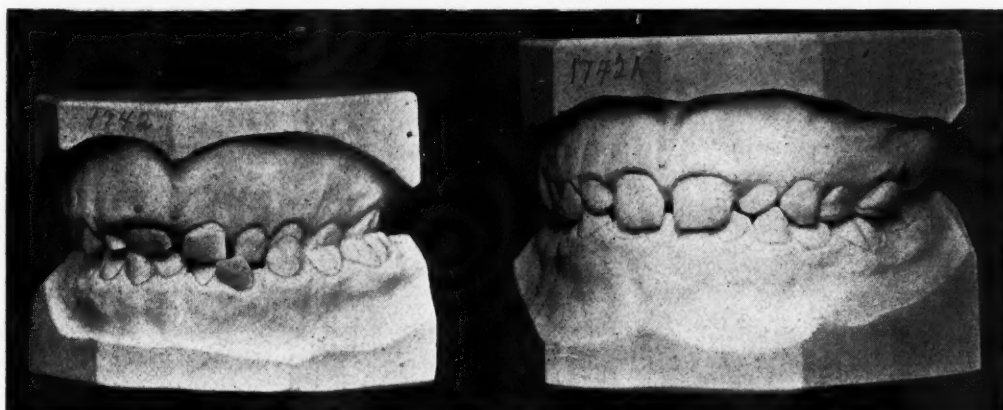


Fig. 8-A.

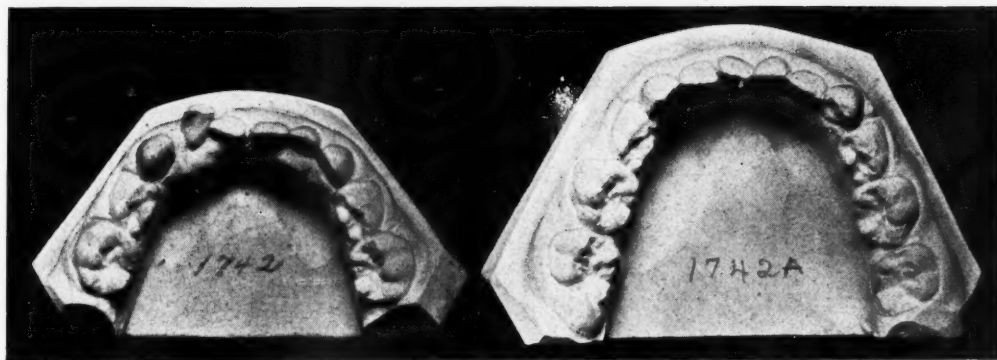


Fig. 8-B.

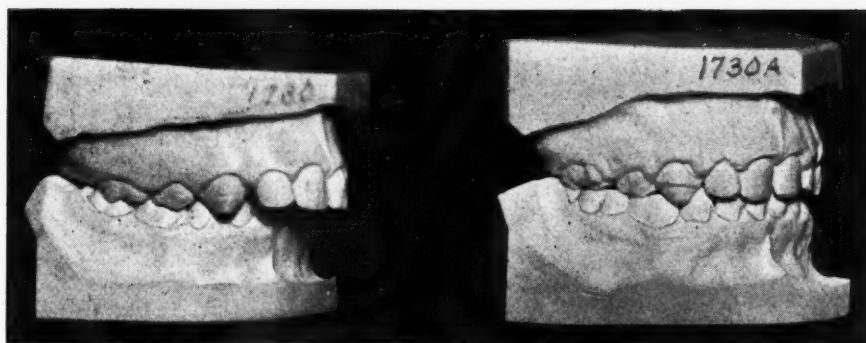


Fig. 9.

pride to exhibit such a case before and after treatment when we made application of labial arches, ligatures and intermaxillary elastics, but the distinguishing feature of this case is that no apparatus was used on the mandibular arch. The time elapsing between the two models is five weeks and represents but one adjustment. The study of this case revealed the fact

that this child was also a thumb-sucker. Celluloid mitts and various other devices were used to cure her, but without avail. The preliminary treatment consisted merely in exercising those muscles which controlled the position of the mandible. The narrowed maxillary arch, of course, caused a condition of mechanical disadvantage which made it impossible to develop without mechanical interference. Therefore, a light 28-gauge wire was made in the form of a junior pin and tube appliance attached to the molars and canines. This appliance was first constructed to fit the deformed arch and then molded into the desired shape and applied. The mother was given instructions to have the child continue the exercises, and when the interference of the maxillary had disappeared, to have the child place her mandibular arch in a position of mechanical advantage and then begin the exercise of the masseter-temporal muscles. After the third week the child was able to place the mandibular arch in its normal position. The next step is the strengthening of the orbicularis oris muscle and all the muscles of the face and neck. I anticipate that little or no retention will be necessary, and that the future

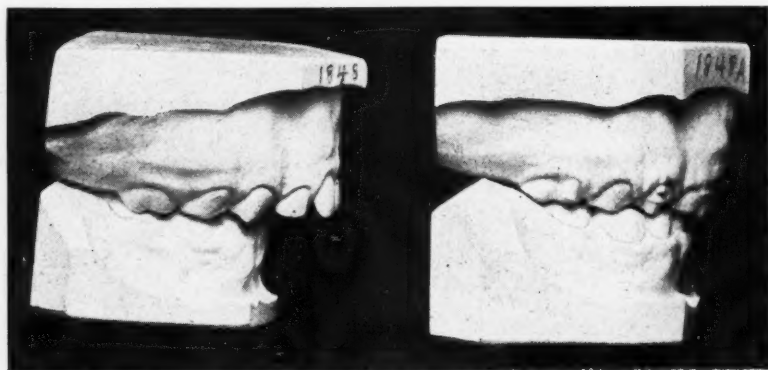


Fig. 10.

development and the arch form, at least will tend toward the normal. Malposition of the individual teeth may occur, but how much better it is for the child to look forward to the minimum application of appliances because she possesses a set of facial muscles working in harmony and balance.

JEAN. Six years of age (Fig. 10). Case was almost identical with that shown in Fig. 9. The results thus far have been very satisfactory. The fact that the patient lives a long distance from the city more fully demonstrates the advantage of the treatment. Very few visits are necessary and no change in the appliance has been made. As far as the distoclusion is concerned the prognosis is favorable. As the muscles grow stronger week by week, their influence cannot be anything but favorable.

ARTHUR. Six and one-half years of age (Figs. 11-A and 11-B). This case is more complicated than the last and needs a more intricate system of exercises because of the malaction of the tongue and mandibular lip. The result which has been obtained in the treatment of this lad is especially satisfactory since by the use of the junior pin and tube appliance on the maxillary and combined stimulation of the pterygoid and masseter group

of muscles this boy has not only overcome the distoclusion, but has also succeeded in developing the mandibular arch.

The following figures will be amply sufficient to illustrate how satisfactory this development is when it is remembered that no apparatus has been applied to the mandibular arch:

	MANDIBULAR		
	BEFORE TREATMENT	AFTER TREATMENT	GROWTH
2nd deciduous molars	28 mm.	29½ mm.	1½ mm.
1st deciduous molars	24 mm.	26 mm.	2 mm.
Canines	19½ mm.	21 mm.	1½ mm.

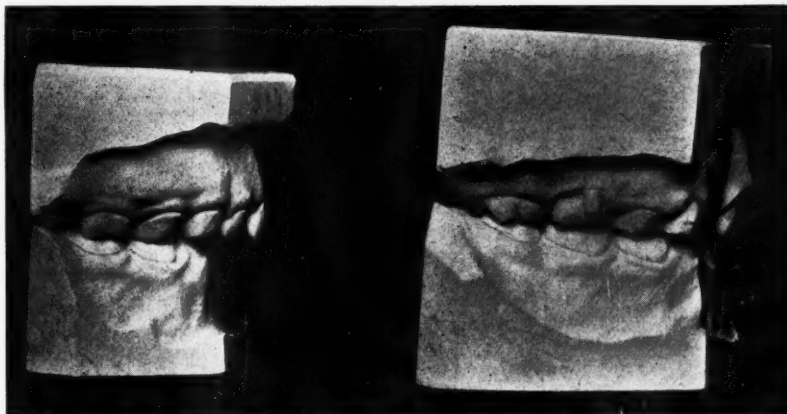


Fig. 11-A.

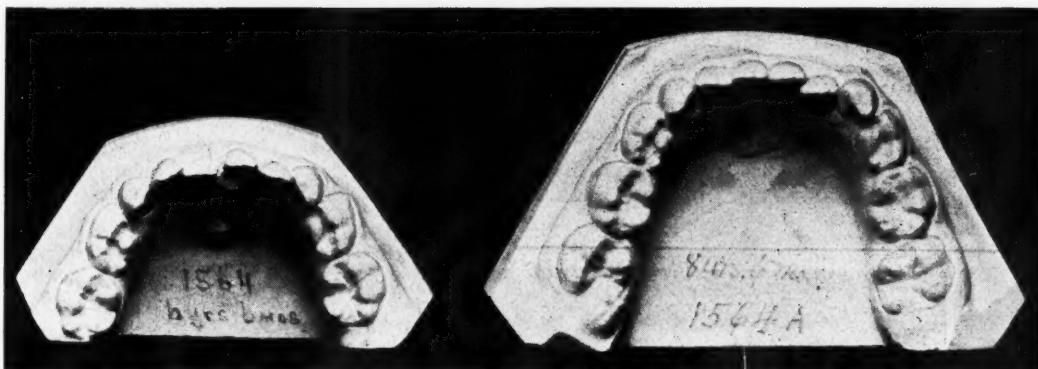


Fig. 11-B.

MARTHA. Six years of age (Fig. 12). The treatment of this case is interesting because in it we have a unilateral distoclusion.

The interference was found to be on the opposite side from that of the distoclusion. This interference was removed by the use of a junior pin and tube appliance on the maxillary and a lingual wire on the mandibular with intermaxillary elastics for a short period.

When the unilateral distoclusion was overcome, the child was placed on the masseter-temporal exercise and no other form of retention has been used. There so far has been no recurrence of distoclusion. The success will depend upon the faithfulness of the patient and the degree of strength main-

tained in the masseter-temporal group. The advantage comes from the fact that the child does not need to wear any retaining apparatus.

BOBBY. Thirteen years of age (Fig. 13). General development of both arches by the use of the lingual wire. After the removal of the interference,

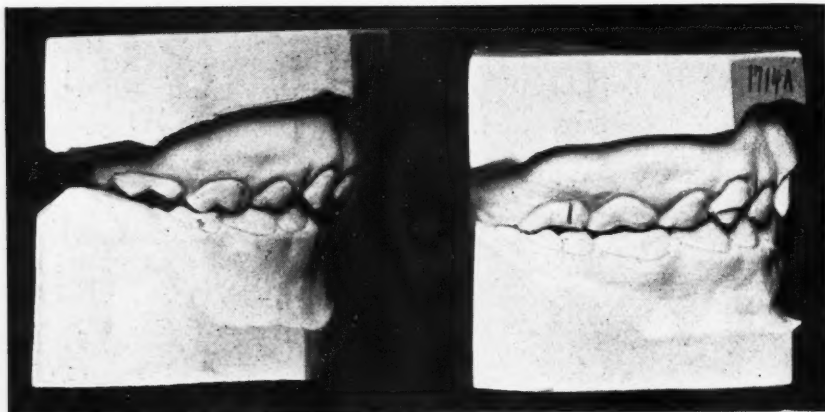


Fig. 12.

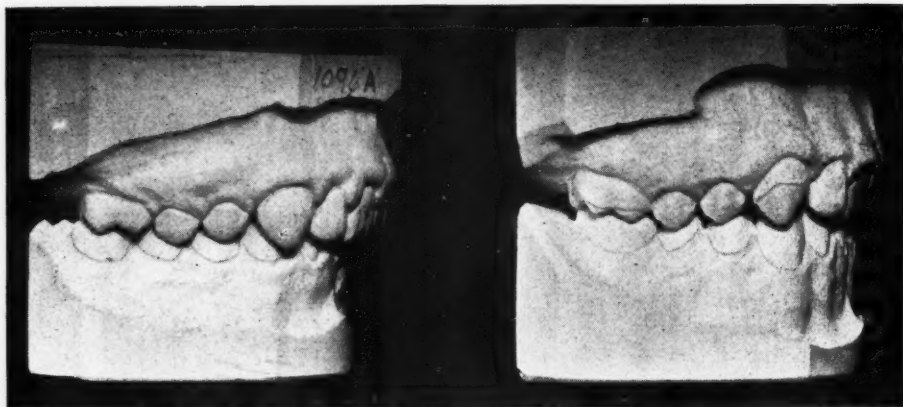


Fig. 13.

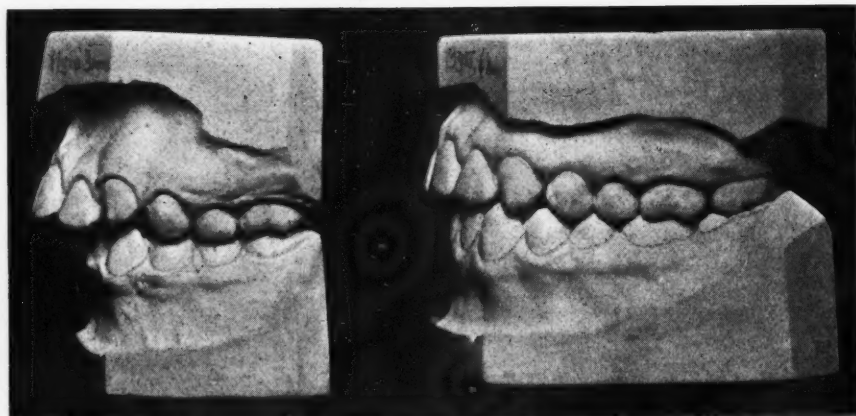


Fig. 14.

the pterygoid exercise was given, supplemented by the masseter-temporal exercise. No use of intermaxillary elastics. This case shows a very satisfactory improvement in the mesiodistal relation which is now normal.

I hope it will not be forgotten that this as many others of these histories are in the process of development, and must not be considered as completed cases. There is a certain value to be attached to this method of study which I am sure is obvious to you all.

CAROLINE. Eleven years of age (Fig. 14). A bilateral distocclusion corrected without the use of intermaxillary elastics. It is in process of development. Focus your attention upon the improvement in the premolar and molar occlusion. Please understand that I advocate the use of intermaxillary elastics when really necessary.

The case histories are given to illustrate how by coordinating natural and

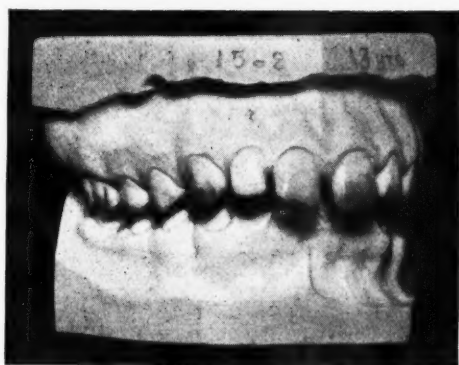


Fig. 15-A.

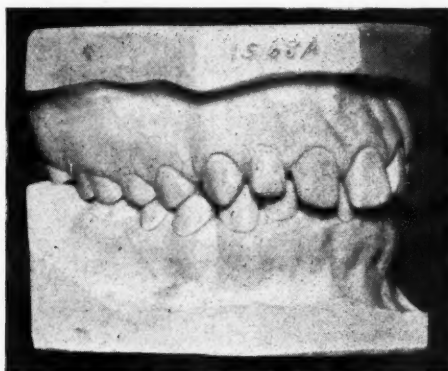


Fig. 15-B.

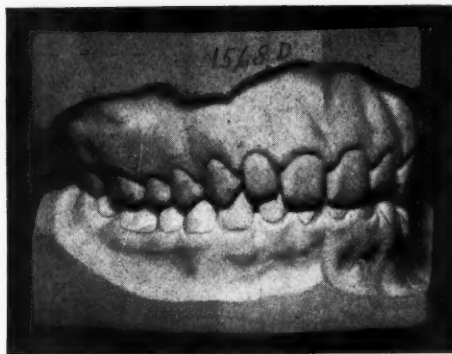


Fig. 15-C.

artificial methods, we in certain cases can eliminate apparatus. It may be an expansion arch, a lingual wire, a pin and tube appliance or intermaxillary elastics as the case may be. The idea is elimination if an advantage may be gained thereby.

BARBARA. Age thirteen years (Fig. 15-A). This is a case in which the preliminary treatment has been accomplished without apparatus. It will be seen by the study of the picture that the case is one of distocclusion which under the ordinary method of treatment would call for appliances on both arches with intermaxillary elastics. The muscular development of this child's face was particularly deficient. The masseter-temporal muscles were so poorly developed that the child had little conscious control over their action.

She was first taught to place her arches in a position of mechanical advantage and while in this position she was encouraged to make conscious and persistent effort to contract and relax this group. These muscles gradually grew in strength and it was not many months before I found that the child was able to masticate with her arches in the correct mesiodistal relation. Of course the malposition of the anterior teeth will have to be corrected by apparatus, but the retention can be greatly facilitated by strengthening the orbicularis oris muscle. Fig. 15-B represents this same case after six months of exercise. Fig. 15-C shows the case after the malposition of the anterior teeth had been corrected.

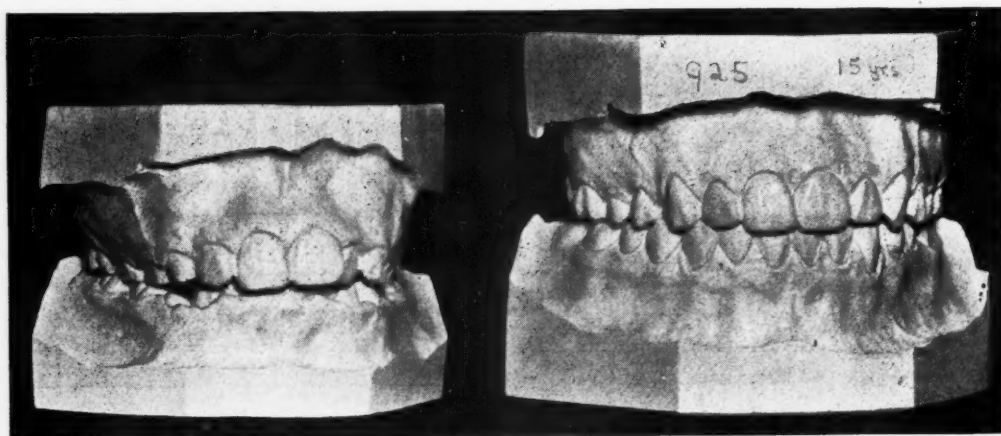


Fig. 16.

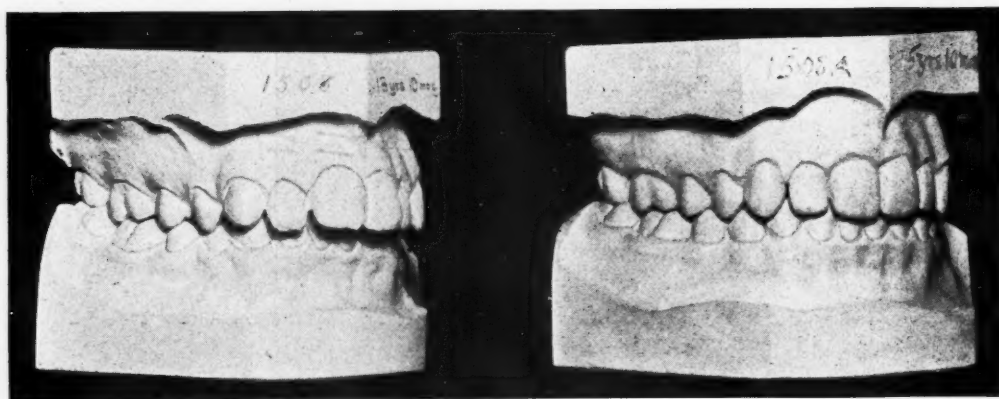


Fig. 17.

GRACE. Nine years of age. Fig. 16 is a case treated by the use of lingual wires with exercises of the various muscle groups. It is of particular interest because of the fact that no retention was used. The maxillary lingual wire was removed some six months before the mandibular. When last examined the mouth was in a splendid state of development.

MARY G. Thirteen years, 10 months (Fig. 17). This represents a case of neutroclusion, and is one in which the patient has received permanent benefit. The muscular efforts, in this treatment, were designed both for treatment and retention. A comparatively short period of mechanical inter-

ference was needed to develop both arches. Lingual wires were used, resulting in a bodily movement of the teeth. During the process of the development, the muscles of the face, including the tongue, were strengthened. No retention was applied and no recession has occurred. The second model was taken more than six months after all appliances were removed. To appreciate the beauty of this result, one must see the original mouth. The lines of the face are ideal and the lips are firm and the tongue is performing its proper function of preserving the mandibular arch form. In fact there appears to be a balance between the muscular forces involved.

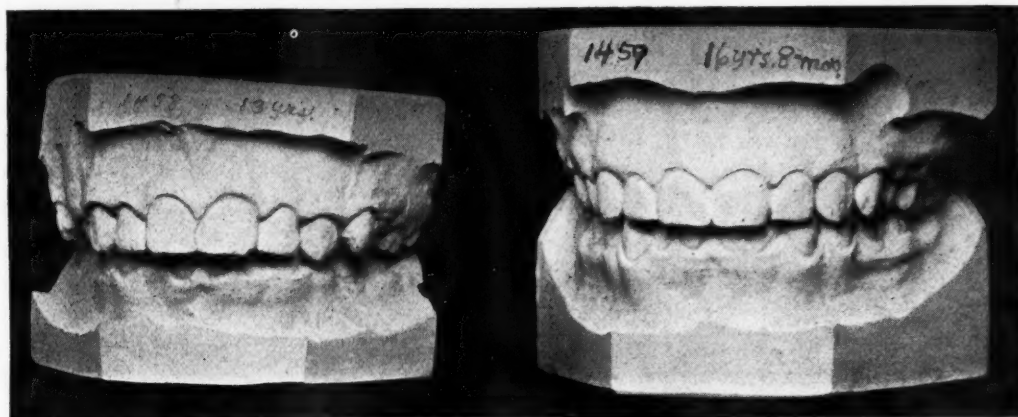


Fig. 18.

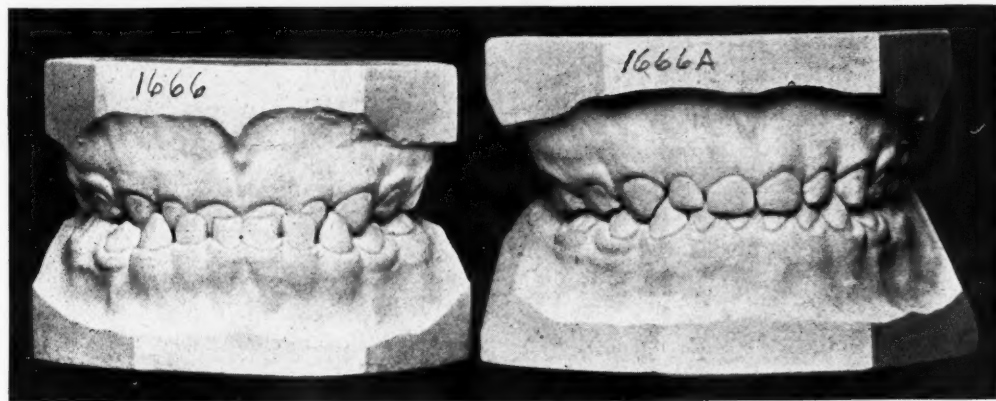


Fig. 19.

COURTLAND. Thirteen years of age (Fig. 18). Neutroclusion in which several of the premolars were found to be in buccal occlusion. This presented a simple case in which exercises were very effective. After the correction of the malposition of the teeth the exercising of the masseter-temporal group of muscles made recurrence impossible. Lingual wires were used.

It now remains for me to illustrate to you two or three cases of mesioclusion which have been treated largely by muscular activity and each of which has been retained without the use of apparatus.

JACK. Five years of age (Fig. 19). Received mechanical interference as preliminary treatment. A maxillary lingual wire with intermaxillary hooks on the buccal surfaces and a mandibular labial wire secured to the anterior

teeth with hooks. Very light elastics were used and the mother given instructions that as soon as the cusps were approaching normal relation she was to apply the masseter-temporal exercise. The work was accomplished between the first appointment after the apparatus was applied and the next appointment—a period of four weeks. When the child presented himself for his second treatment he was well on the way to recovery. The elastics were removed and the further treatment was accomplished by exercise. These exercises were continued with the appliance in place, but inoperative, simply as a precautionary measure. In case a relapse should occur, the means were

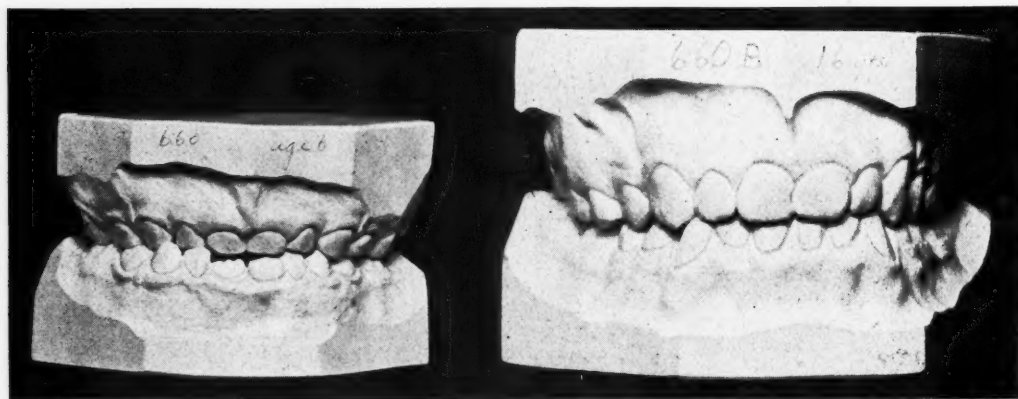


Fig. 20.

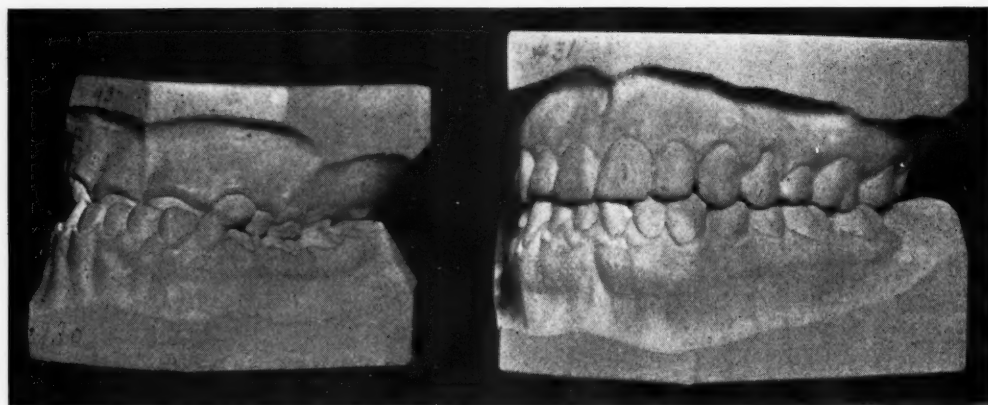


Fig. 21.

at hand for further mechanical treatment. At the end of four months the appliances were removed and the child continued muscular treatment with the result that you see.

JAMES. Six years of age (Fig. 20). This case was particularly difficult. Although for a long time intermaxillary elastics were used, this careless boy proved almost incurable. His case was one of those very persistent progressive types, and he was one of those unfortunate children to whom it was difficult to make effective suggestion. It was not until he became heartily sick of giving up afternoons of sport that he finally decided that he would take me at my word and develop his muscles as I directed. After five or six weeks of faithful application he presented himself with the mesio-

clusion practically cured. A few weeks later all apparatus was removed much to my satisfaction as well as to his. No retention was applied, and although one or two of his premolars needed rotation this work was not accomplished.

MARY. Eight years of age (Fig. 21). This is one of the most severe cases of mesiocclusion that I have had in my practice, and one which has recently been completed. This showed a persistent tendency toward recurrence. The patient was withdrawn from observation on account of illness

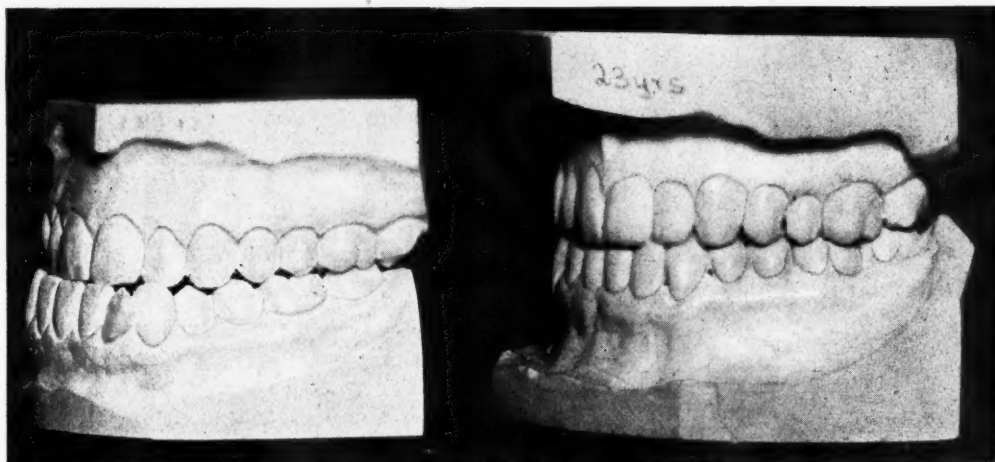


Fig. 22.

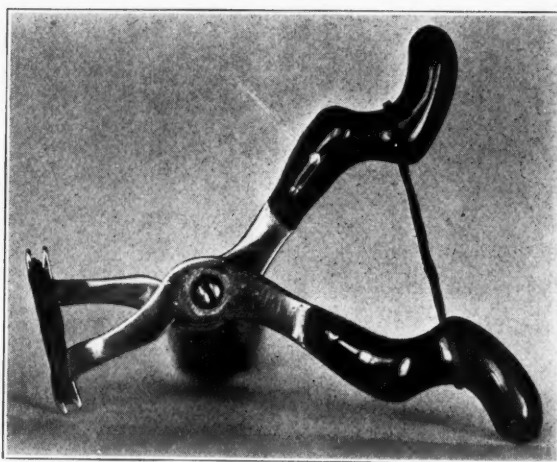


Fig. 23.

shortly after the case was first treated. Several years later she returned with the old maldevelopment recurring. This time with the aid of the ribbon arch, the arches were again placed in a position of mechanical advantage and the development of the masseter-temporal group of muscles was begun, resulting in the early restoration of occlusion and an early removal of all appliances; with no probability of recurrence so long as the muscles are kept strong and active. No retention apparatus was used in the final treatment.

EDITH. Eighteen years of age (Fig. 22). This case represents an older patient whose maldevelopment was first treated with a lingual wire on the

maxillary and a labial wire on the mandibular with light intermaxillary elastics for a short period. When the point was reached where the inclined planes were approaching a position of mechanical advantage, the patient was taught to place the mandible as nearly in its proper position as possible and with continued and persistent efforts to develop the masseter-temporal group. The result that you see on the right, taken long after the mechanical apparatus was removed, shows a complete development of occlusion and without retentive appliances.

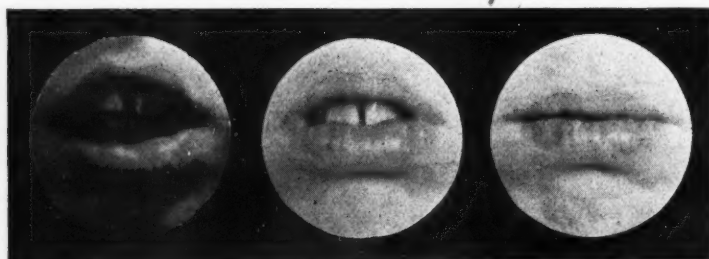


Fig. 24.

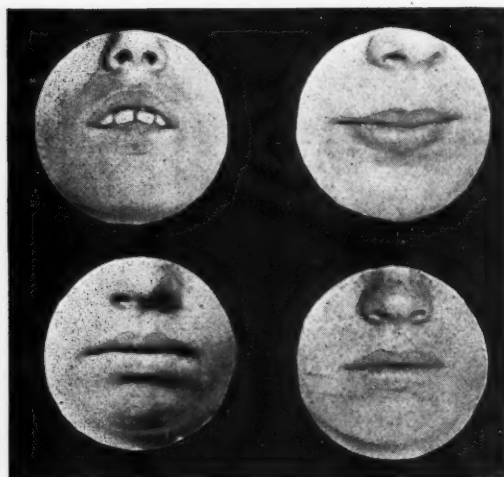


Fig. 25.

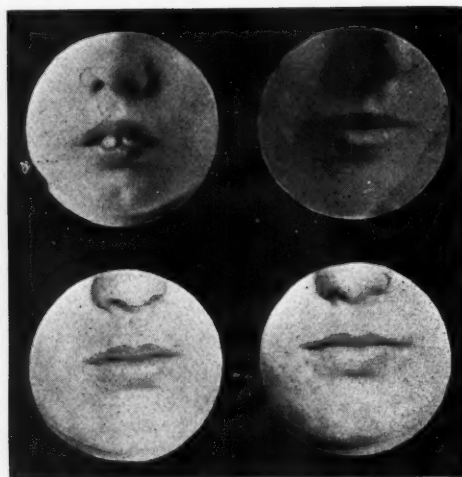


Fig. 26.

EXERCISER

At this point allow me to make some reference to this little instrument which has proved of value in so many cases (Fig. 23). The instrument is so designed that it is difficult to keep it within the aperture unless the muscle is properly contracted. During its operation the patient should not allow the instrument to stretch the lips. It must not be overlooked that the orbicularis oris muscle is composed mainly of two sets of fibers, not considering the fibers of the muscles which intersect. Therefore in making the efforts with the exerciser this should be kept in mind and these fibers held in as normal relation as possible. For instance, if the patient is allowed to pout or curl the lips during the exercise the effect upon the orbicularis muscle is not so favorable, but if the fibers are kept in the position which they assume when pronouncing the word "prism" the exercise is greatly facilitated and a more

rapid development is obtained. The exercise is continued with one elastic during the first week or so and contractions are increased each day until they reach 50 or 60. When the muscle grows in strength an increase in the number of bands may be made. It is rarely necessary to employ more than two elastics. Teach the child to control the extent of action of the rubber bands. It is not wise to overload the muscles because, as you know, any muscle trying to lift a weight beyond its ability is apt to sustain injury. The weight which the muscle should lift must be well within its capacity, increased contractions making up for the lighter task.

Figs. 24, 25 and 26 represent a variety of mouths which have received benefit from this method of treatment.

I shall now describe as concisely as possible exercises which seem fundamental, and which are used in almost all cases where exercises are needed.

PTERYGOID EXERCISE

The first exercise used in cases of distoclusion, I have termed the pterygoid exercise. This consists of the simple action of placing the mandibular incisor teeth anterior to the maxillary incisors and holding them in this position for a period of ten seconds. The patient is then instructed to relax and allow the mandible to recede only to the point where the arches are in their relatively correct mesiodistal relation. This exercise is repeated as many times as seems necessary in the individual case; is often preliminary, and whenever possible is followed by the exercise known as the masseter-temporal exercise.

MASSETER-TEMPORAL EXERCISE

The masseter-temporal exercise is used when the arches can be placed in a position of mechanical advantage, or, in other words, when the inclined planes on being brought together have a tendency to allow the teeth to settle into occlusion. This exercise is valuable during some phase of the treatment of all forms of malocclusion and is especially valuable as a retentive measure, often times entirely dispensing with the retention of the maxillary arch. It is also used in cases where general development is desired. It consists in the contractions and relaxations of the masseter-temporal group of muscles with the mandible in static position. Children at first show the tendency to move the mandible, but any movement from its correct position should be discouraged. Having the child place its forefinger over the masseter muscles will greatly facilitate the performance of this exercise. I am never satisfied to dismiss any case as completed until this group of muscles is well developed.

TONGUE EXERCISE

As an accompaniment to the masseter-temporal exercise, the tongue exercise has particular virtue as it also trains the tongue and strengthens those muscles which are particularly influential in the development of the mandible arch. After the child has learned the masseter-temporal exercise he is then instructed to place the tip of the tongue against the mucous membrane directly

behind the mandibular incisor teeth and with each contraction of the masseter-temporal group of muscles press the tongue against the anterior section, and, at the same time, by the act of widening the tongue force it against the lateral sides of the alveolar process. This exercise trains the tongue to remain in its proper position and has a tendency to prevent the narrowing of the mandibular arch, facilitating the early removal of retentive appliances.

TONIC EXERCISE

The next exercise, which is termed the general tonic exercise, is one which seems to have far-reaching effects. It is not only an exercise which promotes a more copious blood flow to the tissues surrounding the teeth but also it is valuable in training all the muscles of the face in which we are particularly interested. One needs only to give it a few days' faithful personal trial in order to be convinced of its value as a muscle tonic, and also as an exercise of great prophylactic value. It consists in taking a copious sup of warm water in which has been dissolved a portion of either bicarbonate of soda or salt and with the teeth held firmly in occlusion the water is forced through the interproximal spaces into the buccal cavity, then back into the lingual space. This action is continued until the muscles show slight fatigue. This exercise should be repeated five or six times morning and night. From an orthodontic standpoint it is highly beneficial not only as a tonic, but the alkaline liquid is forced around and through the appliances no matter how complicated they may be. I like to have my patients continue this exercise after the cessation of all treatment.

Nature works slowly but accurately when directed in its proper course. It is impossible to show by the exhibition of models and photographs anywhere near the actual results achieved. The physical changes go far beyond where the eye can reach or the fingers sense. The tissue changes are not always caught by the camera, or exemplified in the model. The patient is in all probability benefited far beyond the reach of our observation.

In conclusion let me say that carefully applied exercises may be used first in preliminary treatment in cases showing arrested development. Their beneficial influence may be experienced throughout the period of mechanical treatment. They may be used with marked benefit in the correction of the habits of the lips and tongue, and their influence is indispensable in the retention of all cases of corrected malocclusion. With the external and internal muscles balanced and functioning properly there is very little danger of a recurrence of any serious malocclusion.

When well understood, their use often eliminates for long periods of time the application of appliances, making the period of artificial stimulation much briefer, and finally the facial muscles are more beautifully developed and the esthetic results are far beyond those obtained without this assistance.

DISCUSSION

Dr. B. Frank Gray, San Francisco.—Doctor Rogers is entitled to a great deal of credit for the conservative, yet convincing presentation he has made of the subject on which he

has expended so much thought and done so much practical work. His initial statement that "these practices are an aid in treatment and retention, and not offered as a panacea for all orthodontic problems" goes very far to dispel criticism which is so easily offered about subjects with which we are not very familiar.

It is freely admitted, I am sure, that any procedures that can be so far systematized that they may be relied on to lessen the requirements for orthodontic apparatus, should be hailed as a very great aid. I have contended in years gone by that the wearing of appliances over a long term of years as has seemed so commonly necessary, is a deplorable requirement to say the least.

The suggestion that physicians are interested in this subject, and citing in this connection the experiences of rhinologists who have dismissed patients after removal of nasal obstructions with the assumption that nature would remedy the faulty muscular development, is one that must recall many unhappy recollections to us all. We know too well how far short of a cure we are when we note the persistence of mouth-breathing in spite of all the surgical procedures taken for its prevention, and this too after orthodontic assistance has been given.

Dr. Rogers' third slide is interesting, showing the influence of eruption of maxillary canines on the lateral incisors, and in turn the position of the mandible is altered. It seems reasonable to assume that strong pterygoid muscles might have averted this displacement.

Reference is made in the paper to the use of muscular exercises prior to the application of appliances even in their simplest forms. The essayist does not forget to caution, however, that they are applicable only where there is no very marked interference of the cusps of the teeth and where the treatment would not tend to increase the malocclusion. We are all sure it was never expected nor intended that this work would become so "fool-proof" or general in its indications that our school teachers would be dispensing the treatment in the class room! Such we understand has been done in some instances. Dr. Rogers scarcely hoped for so wide an application of his teaching, we are sure. It need scarcely be said that such random application of these principles of muscle culture may be productive of immensely more harm than good. In brief it would seem to me, if any one thing needs more emphasis than another in this matter, it is the very great need for discrimination, and discrimination cannot be had without knowledge.

Dr. Rogers refers to the importance of developing important muscle groups on the growth of the whole denture, stating that in many cases the use of appliances may thus be postponed from year to year. This is a good endorsement of the plea many of us have made for the increased use of the teeth and jaws, bearing out the belief that much malocclusion is due to disuse. If we can get through with a few of our cases without appliances where we would otherwise have to use them, that is more than worth while. Then in a still larger number of patients the essayist would have us believe we can get along by using the appliances on one arch alone. He further suggests that by this method we may frequently remove all apparatus from the mouth of the young child, allowing it to go many months and sometimes years without reapplication of mechanical apparatus. This echoes a statement I made a number of years ago. At that time I pointed out what I believed to be a serious fault in our treatment, i. e., the keeping of the child-denture harnessed up during practically all the period of its growth and development. I believe this is coming into greater and greater disfavor. Gentlemen, I think it is entirely wrong, and we must get away from it. Appliances may help, and they may hinder the normal developmental processes. Discrimination based on intelligence, and upon the good of the patient must direct us. What would you do if the little patient were your own child? That may help to a decision as to what is right.

I am impressed with the value of the muscle exercises as a retentive measure. It seems to me if they are correctly and conscientiously performed they should be most beneficial. But it is extremely important that the work be systematically and properly done. When I realize the types of rather irresponsible children we at times have to deal with, I feel it is no small task to properly direct this muscle-training regime. While usually

the work will be underdone, I have had a recent instance where the pterygoid exercise was being overdone. The little patient was on the verge of converting a so-called Class II case into a Class III condition!

In my opinion it will be found much more effective not to demand too much of the child. It will be better I believe, if stated exercises are performed say a dozen times each morning, and insist on regularity—than to insist the child shall go through the regime at irregular times and places. Have a stated time for a stated minimum amount of work, and even at that we will have our hands quite full in exacting faithful performance of the task.

Dr. Rogers feels the orthodontist should assume the rôle of the teacher of the young life in his care. Really that ought not to be expecting too much of a truly professional man. However those orthodontists who seek a very large number of patients, will not find themselves able to give adequate instructions and follow up the lessons that are required from time to time. With an interminable string of patients, the absolute mechanical requirements will presently be overwhelming, leaving little time for muscle-culture.

In looking over Dr. Rogers' illustrations, the benefits he has obtained for his little patients are obvious and I believe cannot be gainsaid. It is therefore no criticism of the amount of good he has done to say I have failed to note a proper degree of vertical development in the premolar and molar regions in some cases, i.e., the overbite in the incisor region appears exaggerated. This always has been, and still is, too much overlooked.

Dr. Calvin S. Case is to read a paper before the Orthodontia Section of the American Dental Association at Cleveland, wherein he will try to make clear the faults of undertaking mechanical corrections for many of the very young children coming under the observation of the orthodontist. Dr. Kemple of New York has held similar views. The late Dr. Bogue supported the other side of the argument, and between the two extremes will be found the proper course to follow. Dr. Rogers' contribution should help us to find this middle ground in our practice I believe.

Dr. Robert Dunn.—There can be no question of the benefits that may be derived from muscular training. If there be proper use of the muscles of mastication and proper use of the teeth, there would not be the necessity for so many orthodontists. If Dr. Rogers is on the right track he will confine his methods to the corrective stage. It would be well to advance this work further and carry it to the point where it would be a preventive treatment, taking the young patients at the age of two and three years. At that age the advantages of muscular exercises will be greatest.

Dr. James D. McCoy.—If this were a camp meeting, at the conclusion of that paper I would have proposed we sing "Praise God From Whom All Blessings Flow." I believe Dr. Rogers has registered one of the most important advances in the science of orthodontia of recent years. I only regret that this wonderful paper could not have been read this morning following the paper of Dr. Marshall. It seemed to me one would have offered a most fitting sequence to the other. From the time Dr. Rogers first gave us a record of his studies on this subject it has been a source of growing interest to me and one which I have constantly applied in my practice. While there have been some disappointments, there have been results of a character to convince us his work is logical. Quite a long time ago a case occurred in our practice where a child was very deficient in muscular tone, particularly her orbicularis oris, and after laboring with the mother for some time trying to impress her with the necessity of building up this muscle through muscle training and through exercise, the mother was not satisfied and took the child to another orthodontist. We have no means of knowing who he was, and he made this remark to the mother: "The lack of tone of that muscle had no more to do with the malocclusion than an ingrowing toe nail!" I only wish that orthodontist might have been here today. He is of the type of orthodontists who never attend orthodontia meetings of course. I only regret he could not have been here today to see the results of this sort of work which Dr. Rogers has so clearly shown us. Had that been the case his fund of knowledge would have been materially increased.

A good many years ago I read a book by Dr. Henry Van Dyke,—“The Other Wise Man.” If you want to read a classic in the English language you should read it, if you have not. There was a passage in the opening chapters of this book which made a deep impression upon my mind as a boy. It seems that several men who had looked forward to the coming of the Christ, had seen the sign of the Saviour’s birth in the east, and they were discussing whether they should undertake the journey to the birthplace of the Christ. One would make this excuse and another one that, and finally one young man decided he would go. The older man made this statement to him: “Young man, if you would see wonderful things you must often travel alone.” That passage made a deep impression on my mind, and I often think some of the men in every walk in life who see the wonderful things, are the men who are willing to travel alone. So with Dr. Rogers, we can see he went into this work practically unassisted. He went into it probably as the result of deep study, and through a period of years he probably had to go it alone. I know those of us who have given this work faithful trial can all add data and evidence to that which he has brought out, evidence which would encourage us and him, and which stimulate us to apply the principles which he has laid down.

Dr. John R. McCoy.—I am mighty glad to have heard this paper and to have seen the slides. Three years ago when I was president of this organization, in my address, in presenting what to my mind had been the greatest advance in orthodontia for the past several years, I referred at some length to these exercises which Dr. Rogers had given the orthodontic world. So it gives me particular pleasure today to see the further advancement in the same direction. In my own practice in our office I think we have demonstrated the value of what Dr. Rogers has given us.

Dr. F. W. Epley, San Francisco.—I used to teach biology and my mind always runs back along biological lines, and as I read this paper it struck me these exercises hark back to the primitive conditions of mankind. A time ago I reviewed an article for the *Pacific Dental Gazette*—an English article. It dealt with the extensive studies of two English dentists, on the present condition of the Englishman’s jaw. The question was asked why Englishmen today have narrow, constricted palates, high roof to the mouth, etc., while Englishmen three or four hundred years ago had low palates and broad arches. It strikes me the answer to that question will be found largely in the character of the food. Why do youngsters like to play in the water, and on the sandy beach? Why do we like the bonfire, the wandering trail through the woods, etc.? It is the trained instinct from our ancestors. The children played by the streams the old folks fished in. They ate grains largely uncooked; they gnawed bones and fed on rough food, and they exercised these masseter and temporal muscles. That gave them broad palates, low vaults, strong arches and strong muscles. Since we have used so much of these patent breakfast foods we can appreciate they do not require the use of the jaws. I think Dr. Rogers’ advocacy of these exercises is to supply the lack of exercise which our daily food, as at present eaten, fails to give.

Dr. Allen E. Scott.—In the Fall of 1916 I had the pleasure of visiting Dr. Rogers in his office and I stated we had not seen anything of him in print for some time. He said it was his custom not to write until he had something to write about. He stated he had something under preparation which was to be presented as soon as he had it in shape. That evidently was this muscular training. Last February, I had the pleasure of spending about an hour with him again. When you see the man and see his office, noting the models and the work he does, you cannot help being impressed with his absolute sincerity. He conducts a very busy practice, and is, in my opinion, as good an orthodontist as there is today. He showed me cases where he has changed distocclusion into neutroclusion without the use of intermaxillary elastics. He also said he did not advocate the use of these exercises as a method of treatment so much as he did a help in that direction, and also as a help in retention. I might say that Mershon is not very enthusiastic about this muscular training, and I assume A. LeRoy Johnson entertains about the same opinion, as Mershon and Johnson are rather close friends.

Dr. W. W. Leslie, Fresno.—I wish to state that I have been using this method myself and I find it quite a wonderful thing. I feel very much like Dr. McCoy, and think we should all say Halle!ujah!

Dr. Suggett.—One of the most interesting and important facts of Dr. Rogers' work is that he has pioneered in it. He has been willing to challenge some of our egoisms or fancies and wonder if things could not be done in some other way. This is an important feature for anyone to cultivate. One of the worst faults of the average man is to follow along the trodden paths, accepting the conclusions and convictions of others without question and never challenging anything. A friend of mine talked to Einstein in Berlin, and asked him how he happened to hit upon this study of relativity. He said it was by challenging a maxim—that light traveled in a straight line. Although they found there was an error in their astronomical calculations they allowed it to stand through the years. He challenged this proposition and saw these calculations were not quite right and it occurred to him that perhaps light did not travel in a straight line: that perhaps as the light rays might pass some other great planet they might be deflected out of a straight line. He assumed that as a theory and he found that corrected the error they had had, and later on at the next eclipse this was checked up.

An advancement, to be worth while, must be made in the face of old methods of thinking, old lines of culture and old maxims. We must say, are they correct, and does this or that theory solve all the theories?

In our own profession I think what Dr. Mershon has done was a big step forward. The lingual wire, without any stabilizing support from the front teeth, was a proposition he had to defend vigorously at his first meeting. It seemed impossible that with a wire extending from the molars and resting on the inclines of the centrals, laterals and canines there might be exercised enough pressure therefrom to move those teeth forward. He found we did not have to exercise great pressure to move the teeth: that we had a stimulation created that did far more than the pressure. So Rogers stepped out and has done something new. The first big step of the new school of orthodontia was the challenge of the theory that we could not stimulate bone growth or increase the width of the jaws. This was challenged by Dr. Angle. Dr. Godard had done as fine service in orthodontia as any man we had. He had a number of fine articles in the old American System of Dentistry and had devised a number of appliances. But he never accepted the proposition we could expand an arch: he in fact read learned articles against it. The teaching I received in college was that we should measure our arches carefully and see how many teeth it required to occupy that space, and extract the others! We thought we were very ethical when we drew the line and extracted only the premolars! So that any man who comes along and challenges any of our old convictions, whether he is always right or not, is the man who will lead on. He has his place, and it is a big place. And I also think the other man, who has the quality of examining all these new theories and is slow in accepting them, has his position. He is a balance wheel to the pioneer who leads on and on to new inventions, new methods and new thoughts, and I am willing to give him the highest honors and congratulations.

Dr. W. J. Bell.—We have had a wonderful meeting here, and some splendid papers have been read. The discussion has been very elevating, but there has been one thing on which a word of warning should be sounded. Dentists as a rule are faddists. Some will agree with me and some may not. I might refer to cataphoresis, so popular twenty-five or thirty years ago that you had to place your order for equipment six months in advance to the Westinghouse people. That died out, needless to say. It had its place, because it had the property of desensitizing the tooth, but because there were so few who knew how to handle it, it fell by the wayside. Later on came the pulp mummifier. It was said to be nonsense to remove the pulp. That fell by the wayside. At a little later time I have only to mention the word emetine. You all know about that. Coming down to our modern methods, and the meeting here today, everything that has been mentioned here has its place in orthodontia, but it has its limitations—and that is what I

would warn you about. We should not go away floating on ethereal waves about the wonderful things we are going to do. We may be like Cinderella when she discovered herself in rags again. We should accept that which is good and reject that which is bad, and we should not allow ourselves to be carried away by some theory that has not been proved.

The lecture on biology we received here today, in my estimation is worthy of the greatest consideration. It opens up for us great avenues of investigation, and it will no doubt assist us in many ways. The main thing that I want to impress on the minds of the members is not to be carried away by fads, as they only reflect back on us with double force and leave us weaker than in the first place unless we are able to separate the wheat from the chaff.

Dr. Robert Dunn.—The question arises in my mind if we are going to accept Dr. Rogers' ideas on muscular training (and I think we will find they will become more and more a principle of practice) how shall we reconcile in this connection, the theory of malnutrition as a causative factor of malocclusion? I have never fallen into that idea myself. I have never accepted it as being a fact that malnutrition was a direct cause of malocclusion of the teeth. I have yet to have anybody convince me. I do not care how much malnutrition there may be, if the child uses the muscles and uses the teeth they will occlude properly.

In checking over the photographs that Dr. Rogers has submitted, we are impressed in a number of cases with the evidences of arrested vertical development. You can see immediately while he has properly established the mesiodistal relation of the arches he has not overcome the arrest of vertical development, and what does he have? He has the spacing of the upper incisors. When he combines his muscular training, at a sufficiently early age, with the proper use of the teeth, he will accomplish wonders in the way of development, and there will *still* be a need for the regulating appliances!

I often recall before I was noting the matter of a lack of vertical development was prevalent in Class II Division 1 cases, after treating patients a number of years and the appliances were removed, there would be a reversion of the teeth. May I ask you what type of malocclusion have I myself? Class II, Division I. Does it look it? When taking my course in Saint Louis I had as perfect a set of teeth as could be seen. A year or two before, I had this accident (indicating) causing me to breathe through my mouth, and what have I now? This has all occurred since.

Dr. F. W. Eply.—I think malnutrition has something to do with the problems to which Dr. Dunn refers. The Englishmen I referred to laid all of these malocclusions and defects to a deeper and more fundamental thing. They made many drawings and worked out much valuable data. I think the solution of these problems will be along the line of diet. For hundreds of thousands of years we had no ground food, except as it was ground one rock on another. The children ate the coarse food, tough animal tendons, etc. It is since we have refined our diet, and have lived indoors that we have been degenerating into a high-palated hatchet-jawed race. The way I feel about Rogers' exercises is that it is a harking back to the exercising of the jaws and making up for the changes the race has been undergoing. I think we may go back to a condition of doing with less cooking than in the past. I have gotten by with water and dried rice in the mountains and found it held me up as well as cooked food. An athlete is curing people by making his patients eat raw grains. A great amount of help will be had from following out these exercises. I am more and more convinced I shall work along these lines. I have cases that require all the assistance that can be had of this character.

RESPONSIBILITIES OF THE SPECIALIST IN ORTHODONTICS*

BY WILLIAM C. FISHER, D.D.S., NEW YORK CITY.

IN announcing the title of this paper, I thought it possible to cover the topics mentioned by your officers and at the same time treat subjects that I have felt for some time should have the serious consideration of those practicing orthodontia exclusively. So, when I invite your consideration of the responsibilities of the orthodontic specialist, I desire to include his responsibilities to the general profession, his patients and his fellow specialists.

The late Burton Lee Thrope, nearly ten years ago, said that it remained for the orthodontists to preach the causes and cure of malocclusion so that all could know the benefits to be derived from modern orthodontia.

Have we preached well? Have we "put over" our message and have we fulfilled our mission? Has the dental profession responded to our teaching and to our work? In many localities the "public demand" is more marked than the "dental request."

Ninety-nine per cent of human dentures present some form of malocclusion, and about one out of every two cases, some time between five and fifteen years of age, is urgently in need of orthodontic treatment.

How many are we treating?

Prepare a total of all the cases under active treatment by the exclusive specialist and be shocked by the small percentage of children we are reaching. Even go further and include the cases being treated, properly or improperly, by the general practitioners and one can derive little additional satisfaction.

What are we to do?

I believe that general practitioners should be encouraged to equip themselves mentally and technically to recognize and treat early the simple cases of malocclusion as they do all other dental defects, or they should refer them to the specialist. Yet, it would be better if the specialist should have referred to him only the difficult cases, just as do the members of the several medical specialties.

I have quoted what a general practitioner had to say regarding our specialty, now permit me to add what one of our own members says:

Dr. C. H. Juvet of Ottawa, Canada, over five years ago in a paper entitled, "What Are We Doing To Justify Our Existence?" said: "The advantage of correcting cases in younger children is that there is no abnormality present in the majority of cases, but simply a lack of development of the arches which is readily overcome. If treatment is delayed until the patient reaches the age of twelve or fourteen, there is an abnormality to correct, and the muscles and features have been so influenced by the underlying tissues, that the abnormal action, like a bad habit, long persisted in, is harder to overcome. If the mem-

*Read before the Southwestern Society of Orthodontists, Waco, Texas, Jan. 24-26, 1924.

bers of the profession would only get the idea fixed in their minds that in the majority of cases we are not correcting irregularities of the teeth, but underdevelopment of the arches or jaws, and that the teeth are only used as a means to an end; and dealing with bone tissue as we are, would appreciate the fact that bone tissue is much less resistant at seven years of age than it is at twelve, it would help very materially in getting the proper view and the proper results.

"When this point is understood and firmly fixed in the minds of our profession, we will see fewer irregularities or hideous specimens of neglect walking the streets of our cities. We can conscientiously say that a great many of these conditions could have been prevented if the members of the profession had taken a greater interest in orthodontia and had realized the responsibility of their position and the duty they owe their little patients, in pointing out these defects early in life while the opportunity for correction is possible."

Dental students should be taught occlusion. Not ten per cent of the dentists today have a complete and sufficient understanding of occlusion—normal or ideal. Without a thorough knowledge of normal occlusion, is it any wonder that the general dental practitioner is unable to diagnose malocclusion until it is so far advanced as to be evident to the parent? Have we fulfilled our obligation to the general profession, both student and graduate practitioner? Have we stressed sufficiently the importance of a thorough knowledge of occlusion in the practice of all the departments of dentistry? Have we shown him his great responsibility for the care of the children's teeth in order that malocclusions do not result from neglected caries? In times gone by, whenever the opportunity was given an orthodontist to read a paper before a dental meeting, he would devote a great part, if not all, of his time to showing the good results he had obtained in treating some difficult cases, including perhaps a description of the exacting technic, instead of showing the beneficial work the general practitioners can do by properly treating simple cases. If he once becomes willing to treat simple cases, nine times out of ten the general practitioner will be only too glad to refer to the well-trained and skilled specialist all of his difficult cases, which is as it should be, if the best service is to be rendered to the greatest number.

In our responsibility to our *little patients* have we given the proper care to small or initial cavities during orthodontic treatment? Have we fully realized the great value of the prophylactic use of cement in deep sulci of erupting molars and premolars? Much of the criticism by dentists regarding decay during orthodontic treatment could best be combated by the orthodontists themselves caring for initial decay, as well as preventing decay by persistent prophylactic cleaning of the teeth at each visit, and the aforementioned use of cement in deep sulci (without the employment of the burr or drill).

Cemented bands should be removed at least once every six months, better every four months, and cleaned; the teeth relieved of all attached cement, and thoroughly cleaned and polished. The reason there was so much decay, which brought just censor from the general practitioner during the earlier years of our specialty, was because of the use of the clamp band, either cemented or un-

cemented. Few orthodontists detected that the clamp band was uncemented until the young patient complained of pain characteristic of dental decay.

From a prophylactic standpoint the appliance that demands many cemented bands is one not to be commended, and its use can only be justified if a simpler one, or especially one not calling for the banding of many teeth, cannot accomplish the same results, equally as well.

Let us be frank to acknowledge that in earlier years undue caries of the teeth were probably caused by the use of appliances which today great advancement of the specialty has made unnecessary. I am giving no endorsement or preference to any particular style or character of appliance, but I do urge the careful selection of a proper appliance for each case of malocclusion.

Common sense cannot comprehend the teaching that could, or would restrict the treatment of malocclusion of the teeth and the malrelation of the jaws to the use of only one character of appliance. Let us encourage the individual who perfects an appliance or a method, let us applaud when he presents its satisfactory resultant treatment, but let us refrain from joining in his claim that it is all-sufficient and universal in its application.

Still another part of the subject should be discussed frankly. I refer to the orthodontist's responsibility to his fellow specialist.

Whenever a patient under treatment is referred for continuation of that treatment a letter should be dispatched in ample time so that the other orthodontist, who is to take up the work, will have had time to digest the report, which should be given in detail. It is unfair to the patient and the man to whom he is referred if less is done. The report of the case should be concluded, together with the orthodontist's wishes in the matter, with a free and honest discussion of the financial question, so that the second orthodontist may be able to meet the inquiries which are sure to be made, usually at the first visit. Frankness may prevent embarrassment and annoyance to both the orthodontist and the patient.

We should be over cautious in criticising the work or appliances of other orthodontists. This applies particularly to the orthodontist who has a patient introduced into his practice without the direct reference of the man originally treating the case. First of all, criticism is unethical; secondly, if uncomplimentary, it may prove to be the beginning of a damage suit by the patient or parent of the patient. In this careless manner of criticising the work of others, much trouble, sadness and hardship may be brought upon innocent, and oftentimes ethical and skillful practitioners, for it may develop that the "criticised" is more skillful and ethical than the "critic."

In conclusion, let us admit our responsibility to our patients, our brother specialist, and the members of the dental profession. Let us further admit that at times each of us has, to some degree, failed to fulfil his complete mission; not wilfully, but nevertheless failed, perhaps because of pressure of work or interest in some other particular development of our great science, and let us in the future, while trying to fully meet this responsibility, broaden our horizon and encourage the dental profession in its desire for more knowledge of the mysteries of orthodontia.

DEPARTMENT OF ORAL SURGERY AND SURGICAL ORTHODONTIA

Under Editorial Supervision of

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THE SUPERPERIOSTEAL INJECTION AND GENTLE DENTAL ANESTHESIA*

BY JOHN JACOB POSNER, D.D.S., NEW YORK CITY, N. Y.

*Chief of the Dental Department, Harlem Dispensary, formerly Instructor in Oral Surgery
New York Homeopathic Medical College, and Flower Hospital, Visiting Dental Surgeon
St. Lukes Hospital, New York.*

FROM the time of the earliest experiments in local anesthesia, the underlying idea was to drive the anesthetizing solution into the tissues under great pressure. Pressure was considered essential to success, and this thought has come down to us unchanged to the present day.

Despite this customary practice, it must now be recognized that the employment of force in infiltration anesthesia is unnecessary, if not unscientific. Injection made in a gentle manner, excluding entirely the idea of high pressure, will produce anesthesia of great depth. The technic is fundamentally different from any heretofore employed; the drawbacks of previous methods are avoided and the additional advantages are many. This new means of inducing anesthesia through infiltration may be termed the superperiosteal injection.

If we will at this time note the various locations heretofore selected for the initial insertion of the needle, we shall readily see why such injections at these widely divergent points demanded extreme force.

An interesting means of securing anesthesia which came into vogue about thirty years ago began with a cocaine injection above the apex of the involved tooth. An opening was then drilled through the soft tissues and into the alveolar process above the apex. Into this opening, a short closely fitting needle was inserted and the solution discharged under pressure into the body of the bone.

About twenty years ago, peridental anesthesia was suggested by Dr.

*Presented before a Progressive Clinic of the Oral Surgery Section of the First District Dental Society, Jan. 7th, in New York at the Academy of Medicine, and again at the Second District Dental Society in Brooklyn, Feb. 11, 1924.

Prinz. The anesthetic solution was discharged beneath the free margin of the gum, and driven along the peridental membrane to the apex.

A third method is that with which we are very familiar. At present it is the most popular. A short needle mounted on a powerful syringe is inserted into the dense gum just above the neck of the tooth. The anesthetizing solution is delivered with all the power of the clenched hand, and every effort made to pierce the periosteum and bone. Anesthesia is usually evidenced by the blanching of the gum. Several insertions of the needle are usually made on the facial aspect. A variation of this technic consists in the use of a longer needle, and after the injection of some of the anesthetic into the dense gum, the needle is advanced until the apex is reached where the bulk of the solution is deposited.

Each of these methods presents at least one serious objection. Drilling into the bone near the apex to provide an avenue of entrance for the hypo-



Fig. 1.—Dense gum and mucobuccal fold.

dermic needle causes undue injury to the tissues with resulting afterpain, and enlarged possibilities of infection.

Peridental anesthesia with its insertion of the needle beneath the free margin of the gum will cause an injury to the peridental membrane from which the tooth might not readily recover. Its use therefore in purely conservative measures is contraindicated. The enormous pressure exercised while injecting into the dense gum presents one of the disadvantages of infiltration anesthesia which is most frequently advanced. This objection which is well taken, lies in the fact that the pressure will frequently spread infection into healthy adjacent tissues.

THE MUCOBUCCAL FOLD

Above the necks of the teeth facially and covering about half of the root is a dense band of firm pink tissue commonly called the gum. This

is composed of the mucous membrane and periosteum, both closely united and joined to the bone beneath. Beyond the border of the gum, the mucous membrane separates from the periosteum, loses its dense character and continues onward to line the lips and cheeks. Its color is now much darker, and of a purplish hue. This line of demarkation may be more clearly distinguished if the soft tissues above the necks of the teeth be painted with iodine. The dense gum changes but little; the mucous membrane, however, due to the iodine, has assumed a dark brown color.

If the lip is taken between thumb and index finger, and pulled down a little way from the teeth it will be noticed that an angle has been formed

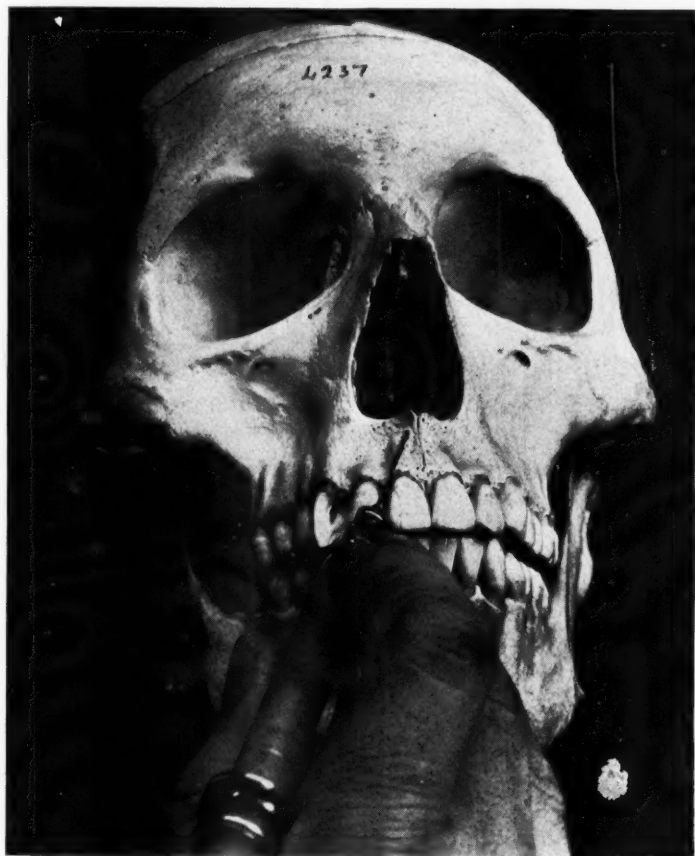


Fig. 2.—Injection for central incisor.

which is lined with mucous membrane. This reflection is known as the mucobuccal fold. The apex of the angle is sometimes quite near the upper border of the dense gum but more often will be found within a quarter of an inch of the apices of the upper teeth. Regard this angle well, for here is the new and scientifically correct point of entry for the needle.

TECHNIC OF SUPERPERIOSTEAL INJECTION; MUCOBUCCAL FOLD

With the lip pulled down and away from the necks of the teeth, expose the mucobuccal fold. Above all, do not push the lip upward, as is commonly done. You only succeed thereby in obliterating the mucobuccal fold which

is your constant and unfailing starting point. While maintaining downward tension on the lip or cheek, insert the needle at the line of reflection of the mucous membrane, and mesially to the tooth in question. At once deposit one or two drops. The needle at this time forms an acute angle with the root. To proceed, you must now permit the shaft of the needle to lie flat against the gum and from this position advance until its orifice is opposite the apex of the tooth. Here upon the periosteum, deposit the balance of the solution.

PRECAUTIONS

After the first few drops of novocaine have been injected, look closely at the needle. Draw the lip down firmly. Is the needle really at the apex of the mucobuccal fold? In the beginning you will find that it is out on the



Fig. 3.—Mucobuccal fold in mandible.

lip too much, and that the line of reflection of the mucous membrane is actually much nearer the dense gum. Therefore withdraw the needle, and make a corrected insertion. This is of utmost importance, for if injection is not made at the proper point, then it is too far away from the bone. In such cases, the solution will be discharged into the soft tissues, and only an unsatisfactory submucous anesthesia will be obtained. This will be evidenced by ballooning of the tissues. This wheal may also be produced if the injection is made too rapidly. Whenever this occurs, pause for a few moments and gently place your finger over the raised mucous membrane. This will distribute the solution.

Throughout the entire injection, the needle is at no time to be forced beneath the periosteum! It should rather slide across the surface of the periosteum until the apex of the tooth is reached. The depth of needle insertion at this time is from a quarter to three eighths of an inch. No cases are ever present where the use of pressure at the mucobuccal fold is warranted

or needed. Under no circumstances discharge the solution from the syringe under pressure. The gentle touch of the finger on the end of the plunger is all that is required to cause the novocaine to flow from the syringe and saturate surrounding tissues.

A LOGICAL INJECTION

Infiltration, penetration and anesthetization quickly follow the superperiosteal injection. Remember that this is all accomplished with an entire absence of force or pressure, and an ease that will surprise and delight the

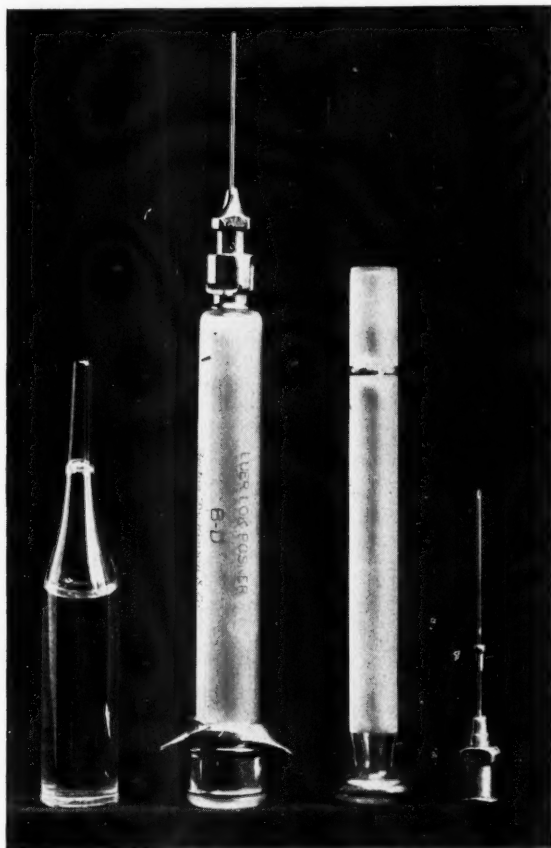


Fig. 4.—Instrumentarium. Luer Lok Posner Syringe. Ampule of novocaine. 3 c.c. Syringe barrel with one inch needle, 25-gauge plunger. Mandibular needle with guide.

beginner. The shortest distance to the apex of any tooth in the maxilla is opposite the apex. The bone being thinnest here, is most rapidly penetrated. The pulp, to become anesthetized, must come under the action of the novocaine. Then surely the most reasonable thing to do is to deposit the novocaine opposite the apex of the tooth where the pulp enters, instead of driving it to the apex under pressure from some distant point.

VARIATIONS IN TECHNIC

Injection for the central incisor should begin at the distal border instead of the mesial, owing to the frenum in the median line. This gives the

central and lateral the same starting point. This also happens to be the starting point for the new infraorbital injection of Sicher.*

When the first molar area is reached, it will be found that the needle cannot be advanced parallel with the long axis of the tooth, owing to the malar process which arches down over the buccal roots. After the mucobuccal fold has been entered and a few drops deposited, the needle is tilted so that it points towards the tuberosity. It may then be advanced slightly beneath the malar process where the remainder of the solution is injected. For the second and third molars, it is for the sake of convenience that we begin our injections a little more to the mesial. The depth of anesthesia for these teeth following the same technic as for any of the others is so profound that this method readily replaces the tuberosity injection.

WHERE, HOW, AND WHY

In all instances of infiltration anesthesia through the superperiosteal injection, the needle enters at the mucobuccal fold. In all cases, the needle advances upon the periosteum; the bulk of the solution should be deposited at the apex, for here is the shortest distance to the pulp.

DOSAGE AND DURATION

For preparing cavities or removing the pulp, the buccal injection alone is needed. One and one half c.c. is sufficient for this purpose and the resulting anesthesia persists for at least a half hour. Where extraction is contemplated, it is necessary to give in addition, a palatal injection.

WAITING PERIOD

For extractions, you are free to proceed within a minute after you have completed the injections. It is amazing to observe the rapidity with which the mucous membrane, periosteum and bone are anesthetized through the superperiosteal injection. It is just as rapid as the high pressure, subperiosteal injection which it supersedes.

When the tooth is to be drilled for cavity preparation, or pulp extirpation, a wait of five to ten minutes is advisable. Even then, as is frequently the case in block anesthesia, it may also be necessary to apply a pressure pluglet of novocaine to the exposure. Nerve endings are extremely resistant to all forms of local anesthesia, and succumb reluctantly.

EXTENT OF ANESTHESIA

It will be found that if one tooth is injected, the neighboring one distally will also come under the influence of the established anesthesia.

PALATAL ANESTHESIA

Looking at the roof of the mouth, it would seem at first glance that the palatal mucosa was equally dense throughout. Upon closer observation, it

*A Consideration of the Improved Technic of Dr. Guido Fischer (Posner), Dental Cosmos, August, 1923.

can be seen that it is divided into a dense area surrounding the necks of the teeth, and a less resistant area, which reaches to the median line of the palate. If the curve of the tuberosity and its dense mucosa is followed, as it comes onto the palate, the line of demarkation between these dissimilar tissues will be obtained. By gently probing with the tips of a pair of pliers one can quickly realize the difference in texture of the palatal mucosa. The line of the tuberosity corresponds with the anterior palatine nerve directly beneath it. This nerve lies in a longitudinal groove at the junction of the alveolar and palatal processes. This groove is rather angular, and forms a sort of recess in its course. It is due to the fact that the mucous membrane of the palate stretches across the nerve in a sort of canopy, that gives it its elastic character. The needle enters here, and is at once advanced to the roof of the mouth, until bone is encountered. Three or four drops of novocaine are sufficient to anesthetize the branches which are intercepted just as they are given off from the body of the nerve. In consequence rapid anesthesia of the mucous membrane periosteum and bone in the area behind the tooth ensues. If this injection is made opposite the third molar, everything to the median line of the palate and as far forward as the canine will be anesthetized. The injection has blocked all impulses of the anterior palatine nerve, just as it emerged from the posterior palatine foramen.

The needle in palatal anesthesia is inserted at the desired point along the line of the tuberosity, and at an angle to the tooth. Once the mucosa has been entered, the needle should be advanced to the bone in line with the long axis of the tooth. Depth of penetration here is not much over a quarter of an inch.

THE MANDIBLE

Infiltration in the mandible is limited to the six anterior teeth. The technic is the same as for the teeth in the maxilla. The mucobuccal fold, however, is now seen to begin immediately at the lower border of the gum. This may be well demonstrated by drawing out the lower lip horizontally.

PATHOLOGY

It is to be understood that the injections described are to be made into tissues which appear normal. Where infection exists, it is always permissible to inject to either side of the pathologic area. Here we have the outstanding feature of the superperiosteal injection, for the absence of pressure at once precludes the danger of driving infection into healthy surrounding territory. In the greatest number of cases of acute conditions attendant with swellings, and abscess, nitrous oxide and oxygen would be the anesthetic of choice.

INSTRUMENTARIUM

One needle alone will answer the requirements in any case of superperiosteal injection. It should be platinum iridium, one inch long, 25 gauge. You will not bend the thinnest needle, neither will you blunt the point in this injection. And these are the only disadvantages which have ever been ad-

vanced against platinum needles. The flame affords instant sterilization! Novocaine suprarenin in ampules provides a sterile, isotonic, safe solution, always ready. The syringe, now that the idea of force and pressure is dispelled need not be of the heavy powerful type. The writer has designed an all glass syringe, which may be boiled after each use conveniently, for it can be dismantled in an instant; the needle, permanently affixed to a smooth hub, is slipped over the tip of the syringe and locks with a simple twist of the fingers; a sterile needle, a sterile solution, a sterile syringe.

ADVANTAGES

The superperiosteal injection carries with it the advantages of all other types of infiltration, and merely eliminates their inherent disadvantages. For one thing, it shows a remarkable record of freedom from afterpain which is to be expected when delicate tissue cells are spared the injury of high pressure. There are many fields of dentistry in which new ideas and methods often require the lapse of months or even years, before their true value appears. Here the proof is immediate. Just inject.

DEPARTMENT OF DENTAL AND ORAL RADIOGRAPHY

Edited By

Clarence O. Simpson, M.D., D.D.S., and Howard R. Raper, D.D.S.

THE DENTAL ROENTGENOLOGIST*

By S. M. GETZOFF, D.D.S., NEW YORK CITY, N. Y.

IT is my privilege and an honor, of which I am deeply appreciative, to present to the American Society of Dental Radiographers some observations upon the fundamental qualities and qualifications which in my opinion are the basic elements that constitute the dental roentgenologist, and upon the possession of which depends in a large measure the present stability, and any further progress that may occur in this specialty.

We all agree that dental roentgenology is a distinct specialty closely and intimately interwoven with the dental art and science, and that its practitioners are therefore specialists of dentistry. Based upon these premises the argument is conclusively in favor of those who by education, training and experience are prepared to practice this important branch of dentistry.

The great importance of the roentgen ray in dentistry has been established so that the dental roentgenologist has a position of much responsibility. His work, however, is valuable only in so far as it assists the dentist or physician in arriving at a correct diagnosis and this can only be accomplished by close cooperation in order to give the roentgen examination its maximum value.

A dentist in general practice cannot give sufficient time to the subject to become proficient at either the technical side or at interpretation. And it is not possible for a man in a single practice to see a sufficient variety of cases to allow of his giving an authoritative opinion in any but the simplest ones.

The general practitioners are apt to over- or underestimate the importance of the roentgen findings. Erroneous interpretation means wrong treatment and consequently bad results which tend to discredit roentgenology, and account for much of the lack of appreciation shown for it.

The simplification of the roentgen apparatus and the installation of

*Read before the American Society of Dental Radiographers, Cleveland, Ohio, September 7-8, 1921.

"units" in dental offices with the slogan "every dentist his own radiographer" has increased the quantity of poor results. In addition to this the employment of technicians lacking the clinical experience necessary for the proper evaluation of the findings has led to equally vicious results.

In proportion as the lack of professional development lowers the operator or the commercial technician to the position of a "taker of x-ray pictures" so to the same degree does the trained roentgenologist rise in esteem and value as an accurate exponent of the art and science of roentgenology.

The subject is one of such vast importance, touching as it does all the cognate sciences, that one must of necessity limit oneself to the consideration of such points as are permissible in a brief paper of this kind.

QUALIFICATIONS

We now come to the consideration of the qualifications of the dental roentgenologist. Strange as it may seem, it must arbitrarily be set down that only qualified and licensed dentists ought to be permitted to practice this branch of dentistry. This also excludes the medical roentgenologist who in my opinion is no more qualified to do and report the findings of a dental roentgen examination than the dental roentgenologist can do and report the findings of a roentgen examination of the gastrointestinal tract.

Now having decided upon who can properly practice this specialty, it is in order to indicate the essential qualifications. Preeminently necessary is a large clinical experience; that is, at least five years of active general practice of dentistry prior to entering a course of special training for the specialty of dental roentgenology.

Briefly considered, this course must include the following: knowledge of physics and electricity. The construction and use of roentgen apparatus, roentgen tubes with their modifications, roentgen physics, technic and chemistry of developing, the technic of intra- and extraoral roentgenography, and finally a thorough course in interpretation. In addition to the foregoing a general survey of medical roentgenology will give the dental roentgenologist a comprehensive knowledge of general roentgen anatomy and pathology, and particularly the roentgen study of bone diseases would greatly broaden the roentgen view of the dental field.

Being well grounded in the essentials outlined in the foregoing, the developing roentgenologist is by no means ready to proclaim himself an expert and to announce his availability for roentgen consultation.

The next step in the progression is to acquire the requisite experience and the clinical sense that comes as a result of the examination of thousands of cases. Such experience can be obtained only through the association with a large hospital or clinic, where vast material is available for the perfection and refinement of technic, clinical study, and diagnostic ability.

Although apparently a long path and a somewhat extensive one, yet by such intensive and thorough work only, can the dental roentgenologist hope to attain that position wherein the respect and confidence of colleagues and patients will be his to command.

In passing, let us briefly review the situation as regards the commercial laboratory: a menace confronting the ethical and properly qualified dental roentgenologist, the profession in general, and the public.

The mere performance of a mechanical act together with certain chemical reactions, does not make a satisfactory substitute for a roentgenologic examination, even when large scale production is considered. From that standpoint the commercial roentgen laboratory is merely "a picture gallery," a place where x-ray pictures are taken. The diagnosis, the clinical history and findings, the reason for the entire occurrence, are entirely lost sight of, the former being more often unsatisfactory or completely wrong, the latter frequently left entirely out of consideration.

In industry and in some of the arts, production on an enormous scale is necessary and imperative, but the product is always uniform because for the manufacture of the parts, equally skilled workmen are employed, and standardized and highly efficient methods are used, so that the consumers are thereby benefited. In the commercial roentgen laboratory, on the other hand, the direct opposite is the result; neither efficient nor satisfactory roentgenograms and diagnoses are obtained, because neither the methods nor the modes of procedure are standardized, nor can they be made so. In addition the most important factor of all, the evaluation of the roentgen findings based upon the discovery of the clinical conditions, the experience of the roentgenologist, together with the interpretations of the roentgenograms are left to the judgment of an inexperienced technician. In the instances when this is not so, the diagnosis is left to a man of comparatively insufficient experience in the art and science of dentistry, as well as roentgenology making accuracy more or less uncertain. And to this there is the further obstacle of the great bulk of examinations which must necessarily be done. As a result the public is served neither efficiently nor properly, and with the usual disastrous results.

TERMINOLOGY

(A Plea for the Adoption of a Universal Terminology)

The subject of dental roentgen terminology looms large, and, if not a matter of contention, it is nevertheless a subject of great variance of opinion. The multiplicity of terms and their diversity must impress even the casual observer with the necessity for a compact, complete, simple and flexible terminology; one that will yield itself to daily use and which by reason of its simplicity will not allow any dubious or erroneous interpretation.

The medical profession has settled this question to the satisfaction of all by adopting the terminology of the American Roentgen Ray Society who saw fit to honor the discoverer of the ray, by prefixing his name to the various terms associated with the subject. The members of the dental profession, far from expressing any great unanimity of opinion, are constantly quibbling over the terms, and constantly undergoing the pangs of etymological labor with the consequent appearance of newly hatched terms in articles and editorials, and nearly all have fair and logical reasons advanced for their adoption.

"A rose by any other name smells just as sweet," but in my opinion there is still a far more important reason for ceasing the quibble over names and for the adoption of a uniform recognized terminology: and that reason is the interrelation of medicine and dentistry.

In the formation of this bond, dental roentgenology has been at once the strong link and the basis for the medical appreciation of the value of modern dentistry. Instead of regarding the tooth as a stepchild of the human economy, our medical confreres now realize and recognize that the tooth can be the seat of pathologic changes so powerful as to be manifested at a considerable distance from their origin; and very frequently the focal lesion is the sole etiologic factor in grave systemic disturbances. The understanding and consideration of focal infection have served to remove many cases of illness from the practitioner's list of chronic ailments.

From these brief considerations the need for an equivalent and uniform terminology is all the more obvious. Why not adopt the medical roentgen terminology and have a currency already in vogue and of good basic value for the interchange of thoughts on technic, diagnosis, etc.? It would not be at all difficult to carry this through inasmuch as many dentists are already using the terms, also the 1922 meeting of the American Dental Association at Los Angeles the association went on record in favor of a report of the committee on nomenclature which recommended a terminology with the word roentgen prefixed to the various terms associated with the subject, viz., roentgenology, roentgenologist, roentgenogram, etc.

In the interest of a closer union between the physician and the dentist as well as for a better understanding of the roentgen concept, the universal adoption of the word roentgenology together with its cognate terms would be highly desirable. At the most it means giving up some pet names which would not be a hardship at all. The word roentgen is not at all confusing, and admits of no other terms than x-ray or associated with x-ray. The inconvenience of such an adoption would be negligible, the resultant gain would be universal. In doing this we would not at all be unique, for the use of a man's name to indicate a discovery of a fact in science or art is not unusual. To cite but a few instances: The various terms used in electricity owe their names to their discoverers, namely, faradism to Faraday; galvanism to Galvani, volt to Volta. Why not roentgen ray in honor of Roentgen?

TECHNIC

The variability due to mechanical and anatomical configurations together with the microscopic character of the structure stresses the fact that the technic of dental roentgenology is not so simple as it appears to be. Having to be adapted to the angles varying in the same and different patients and without absolutely fixed or known positions as in other parts of the body, the technic must be more or less indefinite. Nevertheless there are certain underlying principles which must be strictly borne in mind, one of

the fundamentals being the perpendicular focusing of the ray to the film in a way so as to prevent any possible distortion of the part rayed.

Equally important for good results is the equipment. It is hardly necessary to remark that the best results can be obtained only with powerful and scientifically accurate apparatus; however, above and beyond every consideration comes the operator himself. Given proper equipment and good technique, the essentials still to be required are knack, experience, and a good eye.

DIAGNOSIS

Of the greatest importance in the establishment of a dental diagnosis is the roentgen examination, and in so far as it is complete and accurate the validity of the final opinion is assured. The necessity of a dental training as a prerequisite to the practice of this specialty is clear, and in addition and particularly important is a thorough grounding in pathology.

The study of gross changes by means of roentgen shadows demands as thorough a knowledge of pathology on the part of the roentgenologist as of anatomy on the part of the surgeon. When it is recalled that the roentgenogram is but a projection upon a photographic film of a series of shadows varying in density and representing the structures through which the rays have passed, the possibility of erroneous deduction consequent upon this fact is to be considered. Therefore the correctness of a diagnosis must depend upon the skillful analysis and interpretation of these shadows.

The bony structure of the jaws is subject to diseases similar to those affecting the other parts of the skeleton. The one complicating factor is the dental structures. In this connection it might be recalled what Truman Brophy stated that "the teeth are the least understood and most neglected of all the tissues of the human body."

It is conceded that the value of the roentgenologist consists especially in his ability to interpret the roentgenogram and to render such assistance to the dentist and physician as will help to establish a diagnosis. Although the majority of dentists do their own roentgenographic work, nevertheless the roentgenologist is often called upon in the capacity of an expert in roentgen diagnosis. Particularly in cases of systemic disturbances where the teeth are regarded as a possible etiologic factor, is the specialist chiefly consulted. Hence it is that the roentgenologic diagnosis assumes a double aspect, one as regards the dentist, and the other where the physician is concerned.

The opinion rendered the dentist must be purely from a roentgenologic standpoint; that is, an interpretation of the roentgen findings only, disregarding the clinical picture and history.

The physician refers a case to the dental roentgenologist for examination in the hope the diagnosis will be a definite and a distinct aid in therapy. Rightly so does the physician expect from the dental roentgenologist an extensive report; for the specialist in dental roentgenology is presumed to be a man of vast clinical experience and competent to advise the physician from both a clinical and roentgenological viewpoint, as well as in regard to indicated operative procedure, restoration, and prognosis. Limiting him-

self to oral diagnosis, the roentgenologist is well able to give such an unbiased opinion with reference to the possible therapeutic measures. In some instances the dentist and physician will consult the roentgenologist and view the films together, thereby frequently arriving at a definite diagnosis and clinical deduction to the entire satisfaction of all. Such cooperation is very desirable and to be encouraged, as it is by such measures that the interest of the patient is best served. Having shown the close relationship which must necessarily ensue from the consultation of the roentgenologist with the physician and dentist, I must say a word as regards the cooperation of these three.

It is our duty to cooperate to that end that all concerned in the alleviation of human ills will benefit and give of their best. The community of interest is the patient, and for his benefit and welfare our medical and dental colleagues must have a common meeting ground. The dental roentgenological laboratory offers this facility. The strong and binding link is the dental roentgenologist.

We are all agreed that it requires more than the ability to operate a machine and tube, more than to develop films, and even more than merely to read and describe them. That additional requirement is not essential but is of the utmost importance.

It is the clinical sense that comes with years of experience in the examination of oral conditions. It is that touch of personality which the dental roentgenologist puts into his work, and which makes his interpretation, accurate and reliable. It is this combined with the qualifications I have briefly outlined that has made our work an art and science as well.

Let him, then, be a man of education and training in his special field, of vast experience in the broader aspects of dental art and science, for to him is entrusted the task of drawing the shadows from the light to the end that, from the weaving and commingling of these shadows, there shall be brought to light that which will serve to brighten the life of mankind, and help to free it from the shackles of disease, a filament in the torch of preventive medicine and dentistry.

THE TECHNIC OF ORAL RADIOGRAPHY

BY DR. CLARENCE O. SIMPSON, ST. LOUIS, MO.

OCCLUSAL VIEWS

Maxillary Regions

(Continued from page 50.)

Position of Head. Occlusal plane of maxillary teeth horizontal.

Anteroposterior Angle of Projection. Ten degrees posteriorly from vertical.

Modifications. Fifteen degrees or more for examinations of incisor regions. Vertical for examination of impacted third molars.

Lateral Angle of Projection. Vertical.

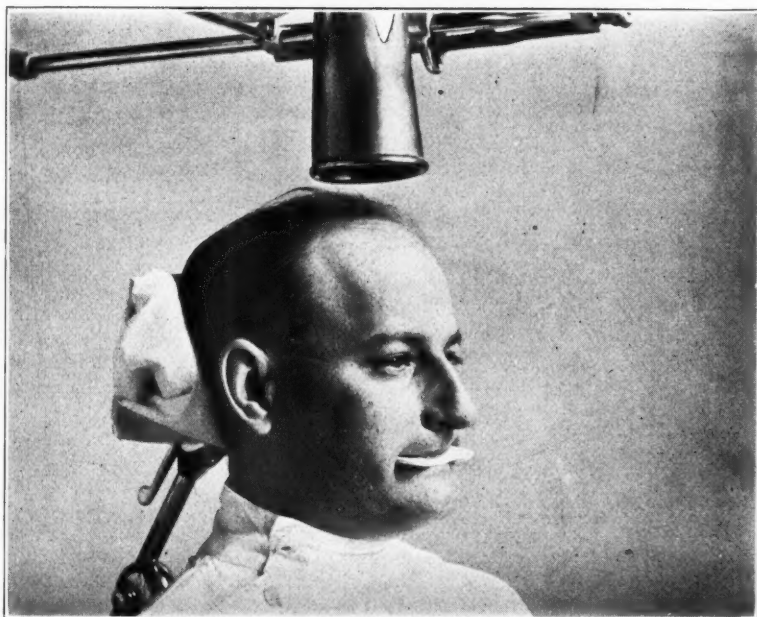


Fig. 1.—The retention of the film packet, and position of patient and cone for an occlusal view of the maxillary region.

Placement of Film Packet. Number 2 extra fast films or double coated films cut to suitable size placed with longer dimensions laterally.

Retention of Film Packet. Film pressure of opposing teeth on packet. Where a marked overbite or other irregularity of the occlusion bends the packet, a sheet of metal about 2½ inches square and 1 millimeter in thickness, with rounded edges should be placed under the packet.

Cone. Centered over the frontal bone toward the center of the dental arch.

Spark Gap. 5 to 5½ inches.

Exposure. 200 to 250 milliamperere seconds at an 18 inch target film distance.

Explanatory Description. Form, size, location, and position of objects are most accurately determined radiographically by viewing in two or more planes of the three dimensions. In intraoral radiography the limitations of projection in the customary lingual views, which does not exceed 25 degrees in the vertico-horizontal plane, often fail to supply the information desired for diagnostic and operative purposes. Occlusal views in combination with lingual views ex-



Fig. 2.—An occlusal view of the maxillary teeth of a four year old child. The secondary dentition from the first molars forward can be observed.



Fig. 3.—Lingual views of two supernumerary teeth and a retained central incisor, giving insufficient information regarding location and position.

tend the angle of projection to an arc ranging from 50 to 90 degrees, which approximately reveals the three dimensions of hidden objects.

This method is useful in obtaining information regarding unerupted teeth, congenital absence of teeth, pathologic conditions, anomalies, foreign bodies, arch forms, orthodontic appliances in operation, and the results of orthodontic treatment. Young patients are especially adaptable to these examinations since the digital retention of the packet, and the discomfort to the soft tissues are eliminated. Although the superimposed structures impair the definition and contrast in the negatives, this rarely thwarts the objective of the examina-

tion. The anterior portion of the frontal bone is the greatest obstruction encountered, and where it is parallel with the longitudinal axes of the incisors a modification of the anteroposterior angle is necessary to disclose this region.

The divergence of the rays from the target, closely coinciding with the general inclination of the maxillary teeth, permits a rather satisfactory view of the entire arch. When a special examination of a region is indicated, the angle of projection may be changed to parallel the longitudinal axes of the teeth. Where impacted third molars have forced the roots of the second molars

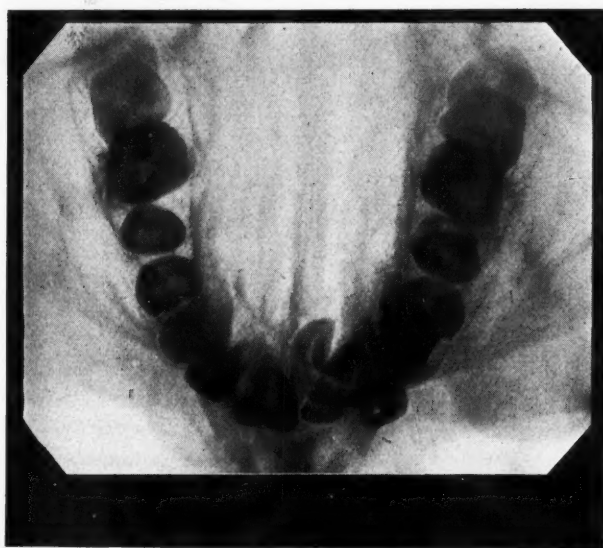


Fig. 4.—An occlusal view of the case shown in Fig. 3, supplying more definite information for the removal of the supernumeraries.

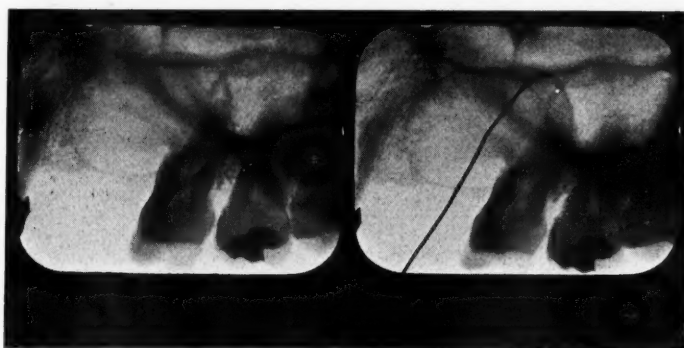


Fig. 5.—Lingual views of a cyst invading the maxillary sinus.

forward, the angle of projection may be vertical or more anteriorly to accurately show the relation of these teeth.

The exposure and penetration recommended for this technic restrict the examinations to equipment of 5 inch or greater capacity, and the number of exposures to two which may be safely made within a period of two to three weeks. The use of intensifying screens permit the examinations being made with less penetration and exposure, but the technic is more complicated and the accessories would have to be improvised.

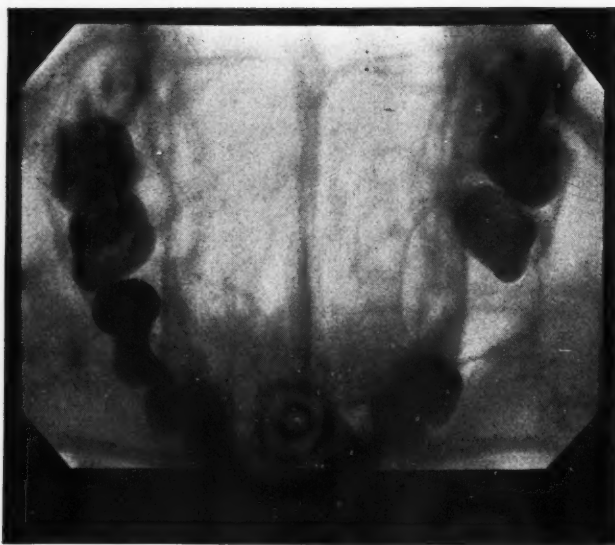


Fig. 6.—An occlusal view supplying additional information regarding the location and size of the cyst shown in Fig. 5.

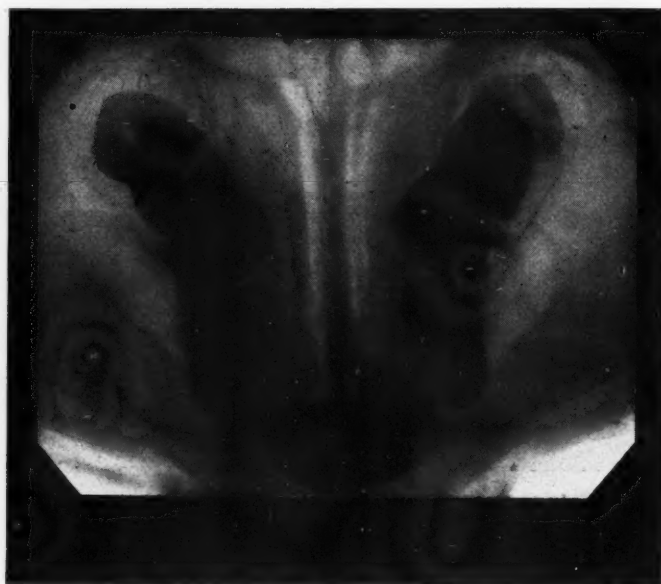


Fig. 7.—An occlusal view of extreme maxillary deformity.



Fig. 8.—Occlusal views before and after orthodontic treatment for six months, showing the appliances in operation, and a striking record of the improvement in arch form.

ABSTRACT OF CURRENT LITERATURE

Covering Such Subjects as

ORTHODONTIA — ORAL SURGERY — SURGICAL ORTHODONTIA — DENTAL RADIOGRAPHY

It is the purpose of this JOURNAL to review so far as possible the most important literature as it appears in English and Foreign periodicals and to present it in abstract form. Authors are requested to send abstracts or reprints of their papers to the publishers.

Dental Infections, Oral and Systemic. Editorial. Oral Health, December, 1923, xiii, 12.

The editor comments on the new volumes on these subjects by Dr. Price. Some of the salient points made are as follows: There is no essential difference between an infection with much pus production and one with little; this difference is simply a question of individual reaction. The infection with but a slight amount of pus is equally undesirable. Slight reaction about an infected tooth could, in theory, mean a vigorous defense, but for all we know it may be just the contrary—a feeble defense with penetration of toxic matter into the system. Many degenerative processes, usually regarded as diseases, and much functional insufficiency may be due to dental infection as well as actual infectious diseases.

The author in connection with his original work has required five hundred rabbits a year, and regards the rabbit a martyr to science and a more useful unit than many a human being. The author has been continually at work for more than twenty-five years in the researches upon which his book is based.

Building Material. W. Sorensen. Nebraska Dental News, Oct. 1, 1923, vi, 1.

Under this title the author sums up the present status of preventive dentistry. He cites the fact that during the war the demand for Danish butter became so heavy that the dairy men of that country fed their own children with skimmed milk until there resulted the deficiency disease, due to lack of the fat-soluble vitamine, known as xerophthalmia. A German raider crew with abundance of certain kinds of provisions, as sugar and finely milled flour, biscuits from the same, canned foods and oleomargarine and even fresh beef, managed somehow to develop beri-beri from deficiency in water-soluble vitamine. The treatment consisted in feeding with the washings of bran and mother liquor of cooked vegetables, with fresh eggs, milk and oranges. Hartzell cites an episode among the foreign born iron miners of Northern Minnesota who were fed largely on finely milled flour, sugar and coffee, to the exclusion of vitaminiferous foods. No deficiency disease is mentioned but dental caries became almost epidemic and is set down as due

to the defective diet. It is claimed that the same result is produced in quite a different way in Kentucky by elimination of lime from the diet through faulty cookery. It is probable that some vitamine-like body is necessary in the diet for the body to be able to utilize the dietetic lime. The author thinks that the great affinity of calcium for sugar may have something to do with disturbing the calcium metabolism in the body. The fact remains that the sugar-consuming nations suffer most from dental caries. Here in the United States we are now using nearly 100 pounds of sugar annually per capita. Man seems determined to "make syrup of himself." Despite the propaganda that milk is baby food, McCollom would have every person in the country drink at least one daily quart as a basis for a rational diet. Next in importance come the leafy vegetables—the greens, salad vegetables, etc., which should also be taken daily in large amounts.

Relations of Dental Infection to the Nose, Throat and Ear. P. Watson-Williams (Bristol, England). *The Dental Record*, December, 1923, xliii, 12.

The author first mentions earache and neuralgias of dental origin, and in these cases sinus disease may be wrongly diagnosed. He believes that mouth breathing from nasal obstruction is one of the factors in the causation or aggravation of pyorrhea, which he terms cervical infection to distinguish it from apical infection. Operating laryngologists know it to be immensely important to cure dental sepsis before operating on the larynx. Tonsillar disease may be a sequel of sepsis of the wisdom teeth. Ludwig's angina may be of dental origin. For over twenty years the author has upheld the view that while antral infection readily occurs as a sequel of periapical disease the converse may also occur, and that, in other words, caries of certain teeth may be the result of antral disease. Dr. Glassburg, of New York, has also upheld this view and has recently reported several illustrative cases. Naturally the relations between acute and chronic nasal sinusitis and dental disease are intimate, and in diagnosis the author is opposed to transillumination, preferring the x-ray. The best test is the use of a suction syringe to aspirate the pus from the antrum through the nose, after which the microscopist should be able to tell whether or not an active or latent condition is present. In all cases of latent sinusitis the dental apices should be examined, and vice versa. It may be difficult or impossible to cure one of these conditions if the other is present. Removal of numerous infected teeth may fail because an infected sinus may be left behind. The author agrees with other recent writers that a frank formation of pus may indicate a less dangerous condition than one in which little or no pus is in evidence, this applying to pyorrhea and periapical infection.

Transillumination in Dentistry. H. E. Tompkins (New York). *Dental Items of Interest*, December, 1923, xlv, 11.

This resource being of principal value in sinus diagnosis appeals alike to the dentist and rhinologist. It is by no means neglected in dentistry for the author has used it in nearly 1500 cases and Dr. Davies of Chicago has reported 1000 cases. In regard to the relative value of transillumination and radiog-

raphy many have doubtless assumed that the latter has largely rendered the former unnecessary, but this is very far from being the case because transillumination has sometimes led to the correct diagnosis, while roentgenography was still negative. Diagnosis by the older method has, in the author's material, been confirmed by operation, by roentgenography and by the bacterial results of extractions. In the author's hands it has proved valuable and is much less trouble than a roentgen diagnosis; often it is far superior to the latter. It is useful in checking up x-ray finds. These are often negative when extensive mischief has taken place, and when positive are often wrongly interpreted. In an illustrative case the author mentions a negative x-ray when there was extensive swelling of the zygomatic region. Transillumination from the palatal side showed an extensive infection and from the buccal side a less decided picture. Operating with the lamp in position, a large amount of pus was brought away. The failure of the x-ray was due naturally to the absence of any bone involvement. There is a drawback to transillumination in which the x-ray has the advantage—the image cannot be reproduced graphically for instruction. To sum up, the method is of value in diagnosis and operation, and the low costs make it possible for any dentist to employ it while an x-ray apparatus may for one or another reason be out of the question.

Oral Hygiene in the Minneapolis Public Schools. F. F. Harrington (Minneapolis). Public Health Reports, Dec. 21, 1923.

The work has now been maintained a year with the services of two chief nurses who examine all the teeth from the kindergarten to the sixth grade inclusive. The number of separate schools covered was forty-seven. The consent of each principal having been obtained the nurses first take all the names of pupils and give a preparatory talk after which, with little interruption of school duties, the children are examined individually one by one in a separate room. During the examination the child is told something about the teeth and the use of the brush. Attention is called to the six year molars. Records are also kept of all cleaning, filling and extraction, and those who do not require any attention are marked O. K. The child is given a slip with the condition of the teeth graded as "good," "fair" or "poor." Those of the two latter classes are also given certificates to be signed by the dentist and this goes back to the teacher.

The second visit is chiefly for the purpose of following up the dental certificates. If the pupils have neglected to visit the dentist the nurse may assume responsibility. All who enter the O. K. class receive gold stars, and an effort is made to stimulate rivalry between schools for the best marks. If the teachers co-operate in the crusade results are always much better, for they can constantly remind the pupils to attend to their teeth and visit the dentist. Some teachers have been responsible for 100 per cent marks. Those who cannot afford to pay the dentist are taken by the nurses to the school free clinics. In addition to the chief nurses there are fifteen assistants who are training at the University of Minnesota. These student nurses acquire a wonderful experience.

Dental Care During the Prenatal Period. W. N. Rowley (Huntington, W. Va.). *American Journal of Obstetrics and Gynecology*, December, 1923, vi, 6.

This care begins with the taking of a dental radiogram which is interpreted with the aid of an ordinary dental examination. The entire diagnostic findings are then recorded and the dentist and obstetrician should cooperate throughout the prenatal period. Certain teeth will probably be marked for extraction as the examination may show that teeth thought salvaged by dentistry are in reality badly infected. If there are upper and lower teeth to come out the upper should be pulled first. Extraction ought to be surgical in character with the minimum of reaction; block anesthesia may be the method of choice. Early extraction is preferable ordinarily, but no rule can be laid down as the women may come for examination at a relatively late stage of pregnancy. If nausea and vomiting are present, and this is very apt to be the case, delay will be necessary. If, however, hyperemesis sets in it is best to hasten the extraction, for much relief may be afforded in regard to nausea and vomiting. If the woman appears late in pregnancy without any symptoms of constitutional infection extraction had better be postponed. If dental sepsis is evident this ought to be cleaned up before delivery, as it is a menace for the postpartum period. What has thus far been said relates to the extraction of abscessed teeth, but ordinary filling and periodontia should also go on with the aim of prophylaxis, bearing in mind the acceleration of decay during gestation.

Differential Diagnosis and Treatment of Gingivitis. Vastine (Danville, Pa.), *The Dental Cosmos*, January, 1924, lxvi, 1.

The author sums up his paper in what he terms "reiterations," which seems fortunate. The gums may be involved through disease of neighboring organs or general pathological conditions, including those due to affections of the endocrine glands. Usually in gingivitis we think of direct and local causative factors—bacteria, parasites, toxins and traumatisms. Of general factors those to be kept uppermost in the mind are syphilis, diabetes, disease of the kidney and bladder, disease of the thyroid body and such physiological causative elements as pregnancy and the climacteric. In making a diagnosis, in addition to general etiologic factors we must give special attention to the tonsils and nasopharynx. Next in order is a bacteriological diagnosis including cultures for Vincent's spirillum and the gingival ameba. The radiographic examination follows and then comes investigation into the state of the metabolism through urinary and blood tests with special emphasis on glycosuria and acidosis. Treatment may be somewhat outside the province of the dentist and must then be left to the initiative of the patient and the internist physician.

Relation Between Dental Infection and Internal Medicine. G. R. Satterlee (New York). *Journal of Ophthalmology, Otology and Laryngology*, December, 1923, xxvii, 12.

The author gives priority credit for the importance of buccal infection as a cause of disease to Adami, instead of to those usually awarded the honors.

He designated the process as a subinfection and others have since placed it under "medical sepsis" to distinguish it from the more violent surgical sepsis. The term focal infection has, however, superseded all others. The number of separate conditions of the jaws and teeth which can determine systemic infection is considerable and the author enumerates seven. In his experience the most frequent offender is the cyst which is simply another name for a chronic abscess, or rather a sequela of the same. Both acute and chronic abscesses may lead to cyst formation. Absorption of the apex is a well known source of focal infection and is often the only evidence of the latter; therefore, the author counsels the removal of all such teeth. Absence of pain is one of the characteristics of focal infection and, in general, of all streptococcus infections. There may be discomfort and a bad taste in the mouth but pain is lacking. The remainder of the article is taken up by case histories. The dominant disease in two cases was glaucoma with threatened blindness. In both the affection was apparently secondary to infection of the maxillary sinuses, with necrosis of the upper jaw. The second patient was toothless showing that buccal infection may occur without the presence of teeth.

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EDITORIALS

Reliable Dental Information for the Public

DURING the last few years newspapers and periodicals have carried health columns in which information on medical subjects was given to the public. Some of these medical columns have attempted to answer questions on dental subjects, and in some instances the information has been reliable and correct, while in other cases the statements have been very misleading.

It has been a recognized fact by a majority of dental men that some means should be provided for giving reliable information to the public regarding the care of the teeth and matters of oral hygiene.

Several attempts have been made to supply this information to the pub-

lie. One plan, sponsored by the National Dental Association and financed by the American Dental Trade Association, took the form of an educational campaign for the purpose of informing the public along dental lines and thereby increasing the demand for dental service. This plan was tried but one year. The results that were accomplished have never been stated or tabulated, as far as we know. Whether the plan was absolutely correct or not, it is our belief that too much criticism was aroused and it was not given a fair trial. We mention this campaign because of the fact that some men in the dental profession have been looking for some arrangement that would provide the public with information, yet almost any scheme that is suggested is immediately criticized. We believe that some practical plan should be originated, and rather unexpectedly such a plan presented itself to the dental profession of New York City a short time ago. The writer was in a position to know some of the inside facts in regard to this matter, and to make a study of the manner in which it was received by certain men in the dental profession.

The opportunity came about as a result of the *New York American* deciding to establish a Woman's Magazine which would appear every Thursday morning, in which there would be a dental section. The editor in charge of the dental section decided that if it was to be a success it must carry reliable information, and this could necessarily be obtained from a representative dental organization. Consequently, the plan was presented to the editor of the First District Dental Society, who in turn presented it to the board of directors. It was rather surprising to hear some of the objections that were raised by certain members of the board of directors, as to why the First District should not cooperate with the *New York American*, in presenting reliable dental information to the public. Most of the reasons seemed to be such as would not be a credit to the dental profession. However, after the question was fairly put before the board of directors, it was unanimously voted to give the matter a trial. Fortunately New York City has a Committee known as the Oral Hygiene Committee of Greater New York, which is made up of most of the dental organizations of New York City, the First District Dental Society being well represented on this committee. It was decided to allow the Oral Hygiene Committee of Greater New York, to furnish the articles which are to appear in the Woman's Magazine of the *New York American* every Thursday. These articles will be written, censored and edited for, or by the Oral Hygiene Committee of Greater New York, and published as being authorized by it. The name of no man will be mentioned, and the personnel of the Oral Hygiene Committee of Greater New York is known to only a few of the dental profession. The committee has fortunately carried on its work on matters pertaining to Oral Hygiene for a number of years and, therefore, was the logical and best organization to have charge of the preparation of these articles.

Articles will cover subjects relative to dentistry which the general public should know. There will also be a form of questions and answers; the questions will be answered by the Oral Hygiene Committee or by members

of the Oral Hygiene Committee, the Committee retaining the privilege and power of censoring the answers.

We believe that this is one of the first plans whereby reliable and authentic information on dental subjects, obtained from a reliable source, will make its appearance in a newspaper column, which will be read by thousands of people.

The plan seems to be far in advance of anything yet presented, and the result will be watched with considerable interest.

Communication

To our Confreres of the Dental Profession:

It has been brought to the attention of the Pacific Coast Society of Orthodontists that certain dentists practicing orthodontia in California, especially the Southern Section, have been guilty of gross discourtesy as follows:

That, when patients from the East, North, Middle West or other travelers have fallen into their hands for temporary relief, they have belittled the efforts of the orthodontist having the patient in charge, especially if the patients' teeth were not fully equipped with appliances of a certain patented type. In more than one instance, the confidence of such traveling patients has been shaken and they have been led to the erroneous belief that their home orthodontist was not safeguarding their interests.

We wish it to be known that we deplore the fact that such a state exists in California, and we further wish it to be known that *the members of our Society do not employ such tactics.*

We feel that the road to success in orthodontic practice is not bound by the confines of any single appliance, nor do we feel that it is incumbent upon the orthodontist to exploit any one particular variety.

By order of the Board of Directors of
the Pacific Coast Society of Orthodontists.

CARL O. ENGSTROM, *Secretary.*

ORTHODONTIC NEWS AND NOTES

Fourth Annual Meeting of the Southwestern Society of Orthodontists

BY WM. C. FISHER, D.D., NEW YORK CITY

Orthodontia via the Southern Society

THE opening session of the Southern Society of Orthodontists on Monday morning, January 21, 1924, in the Hermitage Hotel at Nashville, Tenn., found an almost 100 per cent attendance of the members of that Society, together with visitors and guests from other parts of the United States. In fact, it was remarkable the number who were present who could not in any manner be considered as from that section of the country covered by the Southern Society.

The session began with the address of the president, Dr. Oren A. Oliver. It immediately developed that all who had attended were to have a rare treat as far as the program was concerned.

If I were permitted to group the papers I would say that Dr. A. LeRoy Johnson of Ann Arbor, Mich., Dr. John Mershon of Philadelphia and Dr. R. C. Derivaux, a medical man who needs no introduction to the orthodontists of the South presented a symposium on "The Early Treatment and the Biological Considerations of Growth and Development and their Direct Relation to the Subject of Orthodontic Treatment."

When one considers that these three gentlemen prepared their papers independently, and one of them is strictly a medical man, it is all the more remarkable how these three papers blended into one big subject. That these gentlemen handled the subject and handled it well goes without saying.

I consider that I would have been well repaid for my trip from the East, if I had heard no other papers, or if I had been compelled to leave at the conclusion of these papers.

However, this is but half of the intellectual treat that the Southern Society gave those who attended; for with such men as Dr. H. E. Kelsey of Baltimore on "Cleft Palate Cases" and Drs. Casey, W. G. Kenyon, John Lee and Bryan, all medical men of New Orleans, and each a specialist in some practical branch of medicine contributing excellent and instructive papers on the relationship of their specialities to that of orthodontia, it is apparent why the program of the second day was considered just as good as that of the first day.

In passing, let me say that I heard it stated in a most conclusive and convincing manner by Dr. Casey, a nose and throat specialist, that not only was he convinced that the nasal septum could be straightened by orthodontic treat-

ment, but that he had many times seen it straightened as the result of orthodontic treatment. I took occasion to emphasize this statement, and requested in the closing of the discussion that this gentleman reaffirm that position and he did so emphatically. Another nose and throat man in his paper made the same statement, but not so emphatically as Dr. Casey.

The members and guests regretted the absence of the president-elect, Dr. H. C. Hopkins of Washington, whose absence was caused by the death of his mother, and the Society officially, in the form of a telegram, sent their expression of sympathy and regrets to Dr. Hopkins.

The clinics which were held on the evening of the second day were extremely valuable, and the great interest of all concerned was shown by the attendance. These clinics were:—

No. 1.—Joseph E. Johnson, Louisville, Ky. Band and Lingual Lock.

No. 2.—W. K. Slater, Knoxville, Tenn. High Buccal Tube. Appliance for Root Movement of Lower Incisors.

No. 3.—George B. Crozat, New Orleans, La. Several Cases under Treatment.

No. 4.—Clinton C. Howard, Atlanta, Ga. Report of Several Cases with Lantern Slides.

No. 5.—Harry E. Kelsey, Baltimore, Md. Modifications of Fixed Bite Plane and Its Attachments.

No. 6.—Oren A. Oliver, Nashville, Tenn. Some Cases under Treatment, Showing Appliances Used.

No. 7.—Harry A. Holder, Nashville, Tenn. Upper and Lower Appliances for Expansion of Arches.

No. 8.—C. C. Johnson, Memphis, Tenn. The Pinched Lingual Arch.

No. 9.—John V. Mershon, Philadelphia, Pa. Various Types of Auxiliary Springs.

No. 10.—Dr. H. L. Parks, Mershon Lock in Extreme Short Bite Cases.

The evening of the second day the Society attended a banquet to Dr. C. C. Howard, the president-elect of the American Society of Orthodontists. Dr. W. C. Fisher of New York City acted as toastmaster. It would be difficult to imagine a more enjoyable evening; the fellowship in this Society is both helpful and inspiring. Dr. Oliver, the president, presented Dr. Howard with a token of the esteem in which he is held by the members of the Southern Society.

The dentists of Nashville assisted the local orthodontists in transporting all the members and guests to the home of Dr. Oliver, where southern hospitality was exemplified in a magnificent buffet dinner, at the conclusion of which all were driven to the railroad station, and many boarded a special Pullman on the Cotton Belt Route for Waco, Texas, to attend a meeting of the Southwestern Society of Orthodontists. The next morning at Memphis, a committee of local dentists provided breakfast and a two-hour motor ride, and then brought us back to the private Pullman.

Throughout this trip we were made to feel that this railroad was run for orthodontists exclusively, if not for "Exclusive Orthodontists." Even the dining car conductor in printing his menu for the day, headed the same with the words "Welcome Orthodontists."

A report of the Waco meeting will be given elsewhere in this issue.

Fourth Annual Meeting of the Southern Society of Orthodontists

BY P. G. SPENCER, D.D.S., WACO, TEXAS

Report of Fourth Annual Session of the Southwestern Society of Orthodontists, Waco, Texas, Raleigh Hotel, January 24-26, 1924.

Address of Welcome.—Dr. J. O. Hall, Waco, Texas; Response.—Dr. Harry E. Holder, Nashville, Tenn; President's Address.—Dr. T. G. Duckworth, San Antonio, Texas.

A special car of guests from the Southern Society, whose meeting had just closed in Nashville, arrived a little late and prevented opening the meeting until 10:30 A. M.

AFTERNOON SESSION

Paper.—“Preventative Orthodontia” (Illustrated), Dr. Wm. J. Brady, Kansas City, Mo.
Clinic.—“Early Prevention” (Illustrated), Dr. Hugh G. Tanzy, Kansas City.

Paper.—“The Etiology of Malocclusion,” Dr. E. F. Woodring, Tulsa, Okla.

Paper.—“Diet,” Dr. O. H. McCarty, Tulsa, Okla.

Paper.—“Anomalies of the Teeth as to Eruption, Form, and Structure,” (Illustrated), Dr. T. M. Robertson, Coffeyville, Kan.

Clinic.—“Anomalies of Position, Size and Function of the Jaws, Muscles, and Associated Soft Structures,” (Illustrated), Dr. Wm. E. Flesher, Oklahoma City.

Table Clinics.—“The Use of the Flat Labial Unthreaded Alignment Wire in Connection with the Lingual Arch,” Dr. H. B. Robison, Great Bend, Kans.

“A Rectangular Tube and Modification of the Lock for Attachments of Lingual or Other Arches.”

“Modification of the Fixed Bite-Plane, and its Attachments,” Dr. Harry E. Kelsey, Baltimore, Md.

“Soldered Sleeve-Nut Expansion to a Lingual Appliance,” Dr. E. B. Arnold, Houston, Texas.

“An Anti-Mouth Breathing Device,” Dr. P. G. Spencer, Waco, Texas.

“Several Cases Under Treatment,” Dr. Geo. B. Crozat, New Orleans, La.

“A New Method of Simplified Band Technique,” Dr. O. E. Busby, Dallas, Texas.
Models showing various stages of the development and final results were presented, showing universal adaptation. This method demonstrates the great value of “Busby's Universal Bull-Hide Band.”

Auto ride of city, Cameron Park and principal points of interest.

EVENING SESSION

Paper.—“A Further Consideration of Some of the Phases in Treatment of Cleft Palate Cases,” Dr. H. E. Kelsey, Baltimore, Md.

Illustrated Address.—“The Cliff Dwellers,” Dr. H. C. Pollock, St. Louis. This explained in detail our present knowledge of their degree of civilization. This was one of the most interesting features of our entire program.

FRIDAY MORNING

Dr. John V. Mershon spoke on the subjects “Time to Start Certain Types of Cases and Why,” “The Value of the Auxiliary Spring With Time for Adjustments,” “The Value of Rest Periods,” “The Variability in Treatment,” “Practical Hints,” “Growth and Development.”

Following the noonday lunch, Dr. N. H. Bowman, Waco, Texas, read a paper “Nasal and Pharyngeal Infections in Relation to Orthodontia.”

Golf Tournament.—2 p. m. This annual event is finding greater favor with our members each year. Through the courtesy of the Spring Lake Country Club our guests, members, golfers, and nongolfers enjoyed to the fullest extent the afternoon's program. Dr. Harry E. Kelsey, won the silver loving cup presented by the C. V. Mosby Co., St. Louis, which had been won by Dr. O. A. Oliver of Nashville, last year at San Antonio. A golf bag, presented by A. P. Cary and Co., Dallas, was won by Dr. E. F. Woodring, Tulsa, Okla. Wilson steel shaft driver donated by Thomas J. Dee and Co., Chicago, was won by Dr. P. G. Spencer, Waco. A duplicate of this prize, donated by Thomas J. Dee and Co., was won by Dr. T. W. Sorrells, Okla. City. A golf sweater donated by Julius Aderer Co., was won by Dr. H. C. Pollock, St. Louis. Golf shoes donated by Morris Freeman Co., San Antonio, were won by Dr. H. B. Robison, Great Bend, Kan. One dozen Silver King golf balls donated by The Pepsodent Co., were won by Drs. Hall, Mershon, Woodring and Kelsey for the lowest foursome score. One dozen Silver Kings donated by Pendelton-Arto Co., Houston, were won by Drs. Oliver and Fisher, for best ball twosome score. Box of golf balls presented by William Gold Refining Co., was won by Dr. A. H. Ketcham, winner in the putting contest. Box of golf balls donated by Lavis Chemical Co., was won by Drs. Hall, Mershon, Spencer, and Kelsey for Birdies made in the contest. Dr. F. H. Harrison, Waco, with the highest score won a silver mounted mirror donated by Metcalff and Thomas, Ft. Worth, Tex. Dr. W. A. McCarter won, with the second highest score, Burr Stand with one gross of Burrs, donated by Blue Island Speciality Co. Drs. Duckworth and Arnold, with a tie score nearest 110, divided one box of golf balls presented by A. P. Cary Co., Houston. As the golf chairman had stated each contestant would win a prize, each entrant was presented with a golf ball. These balls were donated by Irwin and Co., Chicago, and Hettinger Bros., Okla. City. In the driving contest Dr. O. E. Busby, Dallas, won a Universal Appliance, and although he thinks the judges acted in a "libelous" manner, he is willing under proper inducements to "ameliorate." All the prizes were distributed at a banquet following the contest, at which Dr. Sorrell's team was the guest of Dr. McCarty's team.

SATURDAY MORNING

Paper.—"Case Indications for the Use of Some of the More Efficient Forms of Appliances," (Illustrated), Dr. A. H. Ketcham, Denver.

Paper.—"Responsibilities of Specialist in Orthodontia to His Patient, the General Profession and Himself."

Paper.—"Endocrine Activity as Applied to Orthodontia Types of Unknown Origin," Dr. C. C. Howard, Atlanta, Ga.

Business Session.—Dr. T. W. Sorrells, Okla. City, was elevated to the office of president. Dr. O. E. Busby, Dallas, was chosen president elect; Dr. P. G. Spencer, Waco, was reelected secretary and treasurer; Dr. E. B. Arnold, Houston, was elected to the three year term on the Board of Censors. Drs. J. V. Mershon, Wm. C. Fisher, C. C. Howard, H. E. Kelsey and H. C. Pollock were elected to honorary membership. Drs. Louis Winston, Frank H. Harrison, J. H. Weaver, H. B. Robison, and G. M. Gillespie were elected

to active membership. Drs. R. D. Griffis and W. H. Lawrence were elected to associate membership.

Resolutions of appreciation were forwarded to those firms who generously donated prizes to the gold tournament. Also to the Spring Lake Country Club for the courtesies extended, to the local Young Men's Business League, Chamber of Commerce, and Waco Car Dealers' Association for the many favors shown the Society.

Resolutions were passed condemning spectacular and misleading advertising, in some instances untrue, appearing in the American Dental Association's official journal, as it was believed to be seriously detrimental to the advancement of orthodontia as a scientific department of dentistry.

All papers were ably discussed and by meeting together at daily lunches and banquets, better friendships were formed. Dr. C. V. Mosby, publisher of "International Journal of Orthodontia," was a welcome visitor, and ably entered into the discussions; we trust he will be with us again next year. Our guests from the Southern Society presented exceedingly worthwhile papers and clinics. This was to be expected as "They do it Every Time." We greatly enjoyed their comradeship and the latchspring of the Southwestern Society of Orthodontists will always be out to these visitors and guests. Every one present expressed the opinion that the meeting was an entire success from the standpoint of pleasure and profit.

Tulsa, Oklahoma was selected for the meeting place in 1925. Let every one of us be there, bring an absent member or friend, and help "Mac" and "Ferris" make next year's meeting the best in our history.—P. G. Spencer, Secretary.

Those present were, Drs. E. B. Arnold, Lewis Winston, J. H. Weaver, Houston, Texas; J. V. Mershon, Philadelphia; H. E. Kelsey, Baltimore; G. B. Crozat, New Orleans; Oren Oliver, Harry Holder, Nashville; C. C. Howard, Atlanta; C. V. Mosby, H. C. Pollock, St. Louis; Wm. A. Murry, Evanston; E. E. Moore, Ft. Worth; Wm. T. Chapman, El Paso; N. H. Coleman, Wichita Falls; W. J. Brady, Hugh G. Tanzy, Kansas City; W. B. Stevenson, Amarillo; J. M. Murphy, Temple; R. D. Griffis, Paris, Texas; W. H. Lawrence, Bryan, Texas; W. C. McDonald, Mart; T. G. Duckworth, T. O. Gorman, San Antonio; W. E. Flesher, T. W. Sorrells, Okla. City; O. H. McCarty, E. F. Woodring, Tulsa; T. M. Robertson, Coffeyville, Kan.; W. A. McCarter, Topeka, Kan.; W. C. Fisher, New York City; A. H. Ketcham, Denver; H. B. Robison, Great Bend, Kan.; C. W. Williams, Shreveport, La.; O. E. Busby, Dallas, Texas; J. O. Hall, M. C. Carnell, F. H. Harrison, P. G. Spencer, Waco, Texas.

A number of the men were accompanied by their wives. The exhibitors were Pepsodent Co., Morris-Freeman Co., Lavis Chemical Co., and J. R. Irwin Co., Chicago.

The International School of Orthodontia

The next regular session of the International School of Orthodontia will be held so as to close just before the American Society meeting, beginning February 11th, 1924, and closing March 17th—five weeks.

American Society of Orthodontists

Program of the Twenty-third Annual Meeting of the American Society of Orthodontists, Kansas City, Mo., March 18-21, 1924.

Tuesday, March 18th, 1924

Morning Session

- 10:00 Business Session.
Report of Board of Censors.
Jos. D. Eby, Chairman.
Report of Secretary-Treasurer.
Walter H. Ellis.
- 11:00 President's Address.
Ralph Waldron, Newark, N. J.
Discussion opened by Burt Abell, Toledo, Ohio.

Tuesday, March 18th, 1924

Afternoon Session

- 2:00 Calcium Metabolism and its Relation to Dental Pathology.
Edward Miloslavich, formerly Professor of Pathology and Anatomy in the University of Vienna, Austria, and now Professor of Pathology and Director of the Department of Pathology and Bacteriology in Marquette University.
Discussion opened by M. N. Federspiel, Milwaukee, Wis.
- 4:00 The use of Round Wire in Bracket Bands Preliminary to Adjusting the Ribbon Arch.
C. A. Hawley, Washington, D. C.
Discussion opened by A. H. Ketcham, Denver, Colo.
- 5:00 Clinic.
Method of Presenting Correct Diet to Orthodontia Patients.
Henry F. Hoffman, Denver, Colo.
Discussion.

Wednesday, March 19th, 1924

Morning Session

- 9:15 Business.
Reading of minutes of preceding meeting.
- 9:30 New Methods of Diagnosing Dento-Facial Deformities.
B. E. Lischer, St. Louis, Mo.
Discussion opened by C. C. Howard, Atlanta, Ga.
- 11:00 Business Session.
Committee Reports.
Legislation—Frank M. Casto, Chairman.
Standardization of Case Records—B. E. Lischer, Chairman.
Report of Committee on President's Address.
Nomination of Officers.

Wednesday, March 19th, 1924

Afternoon Session

- 2:00 Gnathostatic Diagnosis in Orthodontics.
Paul Simon, Berlin, Germany.
Discussion opened by Martin Dewey, New York, N. Y.
- 4:30 Case Reports and Discussion.
No. 1. Archie B. Brusse, Denver, Colo.
Mal-nourished Children.
No. 2. B. Frank Gray, San Francisco, California.
Case Complicated by Loss of Condo-loid Process.
No. 3. Wm. R. Humphrey, Denver, Colo.
Class I (Angle) with Maxillary Incisors Occluding Lingually to the Mandibular Incisors—Patient Twenty-five Years of Age.
(From the practice of A. H. Ketcham).

7:00 Dinner.

This is an informed subscription, get-together dinner. It is expected that all members attend, accompanied by their Wives and Guests.

Thursday, March 20th, 1924

Morning Session

- 9:15 Business.
Reading of minutes of preceding meeting.
- 9:30 Solder Joints:
Micrographic Slides Illustrating Finesses of Solder Used to Obtain Best Results; Explaining Nature of Union, Penetration of Solder, Breakage and other Points of Interest.
Metallurgy and Physical Properties of Banding Materials and Spring Wires: Illustrating Several New Theories and Developments.
Heat Treatment of Orthodontic Appliances.
Reginald V. Williams, Chemist Metallurgist, Member A. C. S., M. E., Buffalo, New York.
Discussion opened by L. M. Waugh, New York, N. Y.

Afternoon

There will be no meeting of the Society, the afternoon being devoted to recreation.

The Local Arrangements Committee have prepared for automobile rides and sight-seeing trips through the places of interest in Kansas City, also a Golf Tournament. A special communication will be sent to the membership by the Committee and suitable announcements will be made at the morning session.

Friday, March 21st, 1924

Morning Session

- 8:45 Business.
Reading of minutes of preceding meeting.
- 9:00 Clinics.
No. 1.
Ernest N. Bach, Toledo, Ohio.
Technique Suggestions Relating to Appliances.
No. 2.
Fred R. Blumenthal, Boston, Mass.
Practical Applications of the Simpler Forms of Orthodontic Appliances.
No. 3.
Oscar E. Busby, Dallas, Texas.
Cast Gold Inlay Substitution for Anchor Bands in the Construction of Orthodontic Appliances.
No. 4.
William J. Brady, Kansas City, Mo.
Exhibit: Facial Art.
No. 5.
Frank A. Delabarre, Boston, Mass.
Technique for Sectional Modelling Compound Impressions.
A Technique for Individual Inclined Planes. (Using the casting method.)
No. 6.
Martin Dewey, New York, N. Y.
A method of Cleaning Plaster Models.
No. 7.
Carl O. Engstrom, Sacramento, Calif.
The Ring Attachment.

Friday, March 21st, 1924

No. 8.
M. N. Federspiel, Milwaukee, Wis.
A Clinical Report Regarding a Case of Osteoma Involving the Maxilla, the Treatment and Result.

No. 9.
Wm. R. Humphrey, Denver, Colo.
A Thirty Thousandths (.030) Round, Labial Arch Delivering Force to Anterior Teeth by Engaging with Hooks Attached to Bands.
(As used in the practice of A. H. Ketcham.)

No. 10.
B. F. Philbrook, Sioux City, Iowa.
H. D. Keeler, Des Moines, Iowa.
Lingual Lock.
Retractor Arch.
Device for Drawing Together Widely Separated Centrals. (Practically Automatic.)

No. 11.
James D. Locke, Grand Rapids, Mich.
Use of Reflex springs to Produce Movement of Teeth and Bone in Segment.
Use of finger Springs on Labial Arch.
Direct Method of Making Molar Bands.

No. 12.
H. C. Pollock, St. Louis, Mo.
A Combination Fixed-Removable appliance in Conjunction with the Angle Ribbon.

Friday, March 21st, 1924

No. 13.
Lourie J. Porter, New York, N. Y.
Lingual Expansion Appliance for Upper and Lower Arches.

1. Adjustable without removal.
2. Quick, accurate and positive action.
3. Comfortable and sanitary.
4. Adaptable to auxiliary springs and molar rotations.
5. Simplicity of Construction.

No. 14.
P. G. Spencer, Waco, Tex.
Anti-Mouthbreathing Device.

No. 15.
Allen Everett Scott, San Francisco, California.
Appliance for Moving First and Second Molars Bodily.

No. 16.
Allen H. Suggett, San Francisco, Calif.
Appliances to Maintain Space and to Rotate a Premolar.

Note:

All Clinicians are instructed to meet with the Board of Censors, Thursday evening, 8 P. M. for the purpose of rehearsing clinics and arranging plans for their presentation.

An announcement will be made at the proper time as to the methods of conducting the clinics.

11:30 Early Treatment.
J. Lowe Young, New York, N. Y.
Discussion opened by J. A. Burrill, Chicago, Ill.

Friday, March 21st, 1924

Afternoon Session

2:00 Case Reports and Discussion.

No. 4 William J. Brady, Kansas City, Missouri.
A Case Involving Probably Endocrine Stimulation.

No. 5 C. C. Howard, Atlanta, Ga.
A Study of Facial Length as an Important Factor in Diagnosing Infra- and Supra-occlusion.

No. 6. Martin Dewey, New York, N. Y.
A Case of Infra-version of the Molars Treated with the Soldered Lingual Arch.

No. 7. Homer A. Potter, Kansas City, Missouri.
A case where Second Molar Extraction is Indicated.

No. 8. T. M. Robertson, Coffeyville, Kansas.
A Case of Root Movement and Bone Development.

Friday, March 21st, 1924

No. 9. L. M. Waugh, New York, N. Y.
Early Treatment

Case I Deformity due to lip biting.

Age 3 yrs., 1 mo.

Case II Impacted deciduous incisor.

Age 3 yrs., 3 mo.

Case III Deciduous upper incisors

locked to lingual.

Age 4 yrs., 6 mo.

Note:

It is expected that the presentation of these case reports and their discussion will bring forth one of the most valuable experiences of the program.

Every member is instructed to prepare notes and participate in a thorough and exhaustive discussion.

Ajournment.

New York Stomatological Society

The next meeting of the New York Stomatological Society will be held on Monday afternoon, 3 P. M., March 31, 1924, at Aeolian Hall, Suite 1504, New York City.

Dr. Rex Taylor will present a paper and hold a clinic on "Prophylaxis and Restorations."

A class of pyorrhea is being organized under the supervision of the Post Graduate Department, John L. Kelly, D.M.D., and Alfred Asgis, Sc.B., D.D.S., instructors.—Alfred Asgis, President; Stanley Slocum, Secretary, 597 Fifth Ave., New York, N. Y.